

## THE BOLAS SPIDERS OF THE GENUS *MASTOPHORA* (ARANEAE: ARANEIDAE)

HERBERT W. LEVI<sup>1</sup>

**ABSTRACT.** Of 48 species of bolas spiders (*Mastophora*) found in the Americas, 22 are new. Of that number, nine new species and six previously known species are North American. The North American *Mastophora bisaccata* is a group of species of similar appearance. We can expect additional finds of new species of these rare and specialized spiders. The species range from New Hampshire in the United States to central Argentina. No species are known from tropical Amazon or the northwestern states of the United States. The greatest abundance of species is in warm temperate areas of southeastern North America and southern Brazil and northern Argentina. *Agatostichus* is synonymized with *Mastophora*. Within this paper, Ibarra and Jiménez describe a new species from Chiapas and Texas. Evidence from palpal morphology indicates a relationship of *Kaira* with *Taczanowskia* and *Mastophora*, suggesting that insect attractants may have evolved only once.

*Epeiroides fasciolata*, erroneously placed in *Mastophora*, is a *Kaira*, the male of *Kaira altiventer*. The related Asian genus *Englyptila* is synonymized with *Ordgarius*.

### INTRODUCTION

Female bolas spiders spend the day resting on leaves and branches, usually mimicking bird droppings and sometimes berries, snails, or leaf buds. At night, the bolas spider feeds on male moths attracted by the spider's scent; the scent mimics the sex attractant of the female moth. This pheromone was first suggested by Hutchinson (1903). Evidence of this pheromone was found by Eberhard (1977), and chemical analyses were conducted by Stowe et al. (1987) and Gemeno et al. (2000). An approaching male moth is caught with a silken thread bearing a viscid drop, the bo-

las, hurled at the moth. Moths stick to the bolas, whereas detachable wing scales permit moths to escape from most orb webs. The unusual behavior of *Mastophora*, first observed by Hutchinson (1903), has attracted the attention of researchers, including taxonomists (Eberhard, 1981; Stowe, 1986; Stowe et al., 1987; Yeargan, 1988, 1994, 1997). Unlike most American orb weavers, the genus *Mastophora* has been revised in the past. That is, the described species were compared and illustrated and keys were made. Mello-Leitão (1931) first reviewed all known species, and in the same year Canals (1931) revised all Argentinean species. Both authors relied on differences in the shape of the horns on the cephalothorax. The presence of horns is a character of the genus and is difficult to use for differentiating species. Genitalia were not illustrated until Gertsch (1955) revised the North American species. Unfortunately, Gertsch's illustrations were poorly labeled. Those with legends indicating an internal view of the epigynum actually were the cleared posterior of the epigynum. Gertsch correctly reported that the diversity of egg sacs from Florida suggested overlooked species.

Most of our knowledge of the biology of these spiders comes from a few species, mostly from North America. All late-instar and adult female bolas spiders spin a horizontal line composed of multiple threads, and then attach a bolas to it. The bolas consists of one, rarely several, balls of sticky glue drops on a line. A moth attracted by the spider's scent is caught by a swing of the leg holding the bolas; the ad-

<sup>1</sup> Museum of Comparative Zoology, Harvard University, 26 Oxford Street, Cambridge, Massachusetts 02138-2902.

hesive is strong enough to hold moths. The moth is wrapped and usually the spider builds a new bolas and continues hunting before eating. After approximately 20 minutes or more of hunting, when the bolas has not been used, the spider pulls it back and ingests the silk and glue and spins a new bolas.

The bolas of spiders in the genus *Mastophora* is held with the first leg and swung at prey. Members of the Australasian genus *Ordgarius* and the African genus *Cladomelea* use the second leg and whirl the bolas (Stowe, 1986; Yeargan, 1994; Leroy et al., 1998).

Only male moths are attracted. Stowe et al. (1987) showed that *M. cornigera* produces several of the pheromone components produced by females of the moth prey species. Gemeno et al. (2000) showed that *M. phrynosoma* produces prey pheromone components in proportions that represent an attractive blend. Attractants are released only while hunting (Gemeno et al., 2000). In one study, *M. dizzydeani* captured 2.2 moths per night, although a moth approached the spider as it hunted about once every 6 minutes (Eberhard, 1981). Different species of moths that mate at different times and that produce entirely different pheromones are caught at different times during the night. Lists of moth species captured were reported by Stowe (1988), Yeargan (1994), and Stowe et al. (1995).

Early instars of *Mastophora* of both sexes and the minute adult males rest on the edges of leaves and feed mostly on male nematoceran flies, primarily Psychodidae (moth midges), which also are attracted by scent (Yeargan and Quate, 1996, 1997). The flies are captured with the first two pairs of legs, without the use of silk. The legs are armed with rows of strong setae (Figs. 5, 6). The spiderlings do not feed on each other (Stowe, 1986; Yeargan, 1994). In later instars, females lose these bristles and start to use a bolas.

North American species have only 150–250 eggs in each of one to five brown egg

sacs (Figs. 445–465). Each egg sac is the size of the female. *Mastophora cornigera* makes more egg sacs. Female *Mastophora* in the northeastern states die in autumn. More eggs have been reported from other species. *Mastophora extraordinaria* was found to produce 530 eggs (Brèthes, 1909) and *M. dizzydeani* produced 826 eggs (Eberhard, 1981). Oviposition of *M. hutchinsoni* (a North American species) takes place in fall and spiderlings emerge in May (Yeargan, 1988). This differs for *M. cornigera*. Clutch sizes for *M. hutchinsoni* ranged from 178 to 275. The sex ratio approached one to one (an unusual exception was observed in one egg case of *M. phrynosoma*, see below). Males and females are similar in size at hatching but females grow to be much larger than males. Males mature in June, at about 1.7 mm total length, two months before females become mature.

The scent may come from the integument (Lopez, 1998). The horns of the carapace of *Mastophora* contain midgut diverticula (Lopez et al., 1985). The silk glands were described by Lopez and Stowe (1985).

The females rest in exposed places during the day with legs drawn in, often on a small pad of silk. All species are cryptic and uncommon, and difficult to find when present. The clustered egg sacs are suspended by strong threads on branches, and are noticed more often than the spiders, particularly in deciduous forests after leaves have fallen. When a spider is picked up, it rolls in the hand rather than holding on, and when first disturbed may regurgitate fluid that has a pungent odor (Eberhard, 1981). A summary of research was reported by Yeargan (1994).

## METHODS AND ACKNOWLEDGMENTS

The collections of the following institutions and individuals were used.

AMNH American Museum of Natural History, New York (N. Platnick, L. Sorkin)



BMNH	Natural History Museum, London, United Kingdom (P. Hillyard, J. Margerison)		Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil (E. H. Buckup, M. A. L. Marques)
CAS	California Academy of Sciences, San Francisco, California (C. Griswold, D. Ubick)	MCP	Museu de Ciências, Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil (A. A. Lise)
CNC	Canadian National Collections, Ottawa, Canada (C. Dondale)		
CUAC	Clemson University Arthropod Collection, Clemson, South Carolina (J. Moore, D. Carnegiey)	MCZ	Museum of Comparative Zoology, Cambridge, Massachusetts
CUC	Cornell University collection, kept in AMNH (N. Platnick, L. Sorkin)	MKS	M. K. Stowe, Gainesville, Florida
		MLJ	M. L. Jiménez, La Paz, Mexico
DMNS	Denver Museum of Nature and Science, Denver, Colorado (P. Cushing)	MLP	Museo de Universidad Nacional, La Plata, Argentina (C. Ituarte, L. A. Pereira)
DU	D. Ubick, San Francisco, California	MNHN	Muséum National d'Histoire Naturelle, Paris, France (C. Rollard)
ECOTAR	El Colegio de la Frontera Sur, Tapachula, Chiapas, Mexico (G. Ibarra)	MNRJ	Museu Nacional, Rio de Janeiro, Brazil (A. B. Kury)
FCMU	Facultad de Ciencias, Sección Entomología, Montevideo, Uruguay (M. Simó)	MUSM	Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima, Peru (Diana Silva D.)
FMLT	Fundacion Miguel Lillo, Tucumán, Argentina (S. Z. Turk, J. A. L. Haedu)	MZAQ	Museu, Departamento de Zoologia da Escola Superior de Agricultura "Luis de Queiroz," Piraciba, São Paulo State, Brazil (G. J. de Moraes)
FSCA	Florida State Collection of Arthropods, Gainesville, Florida (G. B. Edwards)		
IBSP	Instituto Butantan, São Paulo, Brazil (A. Brescovit)	MZSP	Museu de Zoologia, Universidade de São Paulo, São Paulo, São Paulo, Brazil (E. M. Cancellato, R. Pinto da Rocha)
INHS	Illinois Natural History Survey, Urbana, Illinois (C. Favret)	NHMW	Naturhistorisches Museum, Vienna, Austria (J. Gruber)
IRSNP	Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium (L. Baert)	NMB	Naturhistorisches Museum, Basel, Switzerland (A. Hänggi)
JAB	J. Beatty, Carbondale, Illinois	NMP	Natal Museum, Pietermaritzburg, South Africa (D. A. Baraclough, C. Conway)
JK	J. Kaspar, Oshkosh, Wisconsin		
JM	J. Murphy, London, United Kingdom	OSU	Ohio State University, Marion, Ohio (R. A. Bradley)
KVY	K. V. Yeargan, Lexington, Kentucky	QMB	Queensland Museum, Brisbane, Queensland, Australia (R. J. Raven)
MACN	Museo Argentino de Ciencias Naturales, Buenos Aires, Argentina (M. E. Galiano, C. L. Scioscia)	TAMU	Texas A&M University, College
MCN	Museu de Ciências Naturais,		

- Station, Texas (A. Dean, E. Riley)
- USNM National Museum of Natural History, Smithsonian Institution, Washington, D.C. (J. Coddington, L. Lopardo)
- ZMUC Zoological Museum of the University of Copenhagen, Copenhagen, Denmark (N. Scharff)

Brazilian colleagues Erica H. Buckup and Arno Lise encouraged me to revise *Mastophora*. The revision was made possible with the help of numerous South American colleagues with loan of collections, including many old specimens, and advice. Especially helpful were C. Scioscia and the late M. Galiano of Buenos Aires, and the Brazilians E. H. Buckup, A. Brescovit, R. Pinto da Rocha, G. J. de Moraes, and A. B. Kury. I also thank G. S. Oxford, K. V. Yeargan, M. K. Stowe, W. Eberhard, J. Leroy, and A. Leroy for help and advice and Eric J. Olson for translating difficult Spanish. L. Leibensperger was helpful in the laboratory. L. R. Levi and the editor, B. L. Clauson, polished the writing. W. Eberhard read the introduction and improved the wording. K. Yeargan and M. K. Stowe read the manuscript and suggested many improvements and corrections. Much appreciated are the comments of two anonymous readers of the manuscript.

Gifts of *Mastophora* to the MCZ collections were received from C. Hieber, G. Ibarra (from Chiapas, Mexico), J. M. Maes (from Nicaragua), M. K. Stowe, and K. V. Yeargan. G. Ibarra N. and M. L. Jiménez sent specimens of a new species with complete descriptions and finished illustrations. *Mastophora alvareztoroi* is described here with the names of Ibarra and Jiménez as authors.

The project was started with the help of National Science Foundation grant BMS 75-05719. The Wetmore-Colles Fund covered publication costs in part.

For examination of spiders, I followed the procedures described by Levi (1993a). For examination and illustration of the

small and difficult genitalia of *Mastophora*, additional methods were employed.

After illustrating ventral and posterior views of the female, the epigynum was cut off from the body and the soft tissues were carefully removed (Fig. 2). The epigynum was placed on the dry end of a dish with white paraffin, and extra alcohol was removed with a bit of tissue. The epigynum was then placed in a conical pit in the paraffin (Fig. 3) containing two drops of Hoyer's medium.<sup>2</sup> Placement was so that the anterior end faced the bottom; the flat posterior was parallel with the surface (Fig. 3). The viscous nature of Hoyer's medium makes it an ideal clearing medium and keeps the epigynum in position, although presumably other clearing agents, such as oil of cloves or glycerol, could be used. The genitalia were carefully examined and illustrated from at least one specimen of each species; several epigyna were cleared for abundant and variable species.

Male spiders for which determination was known were placed in a drop of tincture of iodine and left overnight before examining them the next morning in 80% alcohol. Tincture of iodine gives a good stain, which may not be permanent, and it is easy to obtain in pharmacies. Tincture of iodine is isotonic with alcohol and does not expand the palpus or warp sclerites.

Gertsch (1955) in his revision did not interpret the two original descriptions by Banks (1898) of *Ordgarius obesus* and *O. corpulenta*. The holotypes were placed in the California Academy of Science and were destroyed in the 1906 earthquake. The specimens, with others, were given to Banks from the Marx Collections after George Marx died. Banks (1898) pointed out at the time:

<sup>2</sup> Hoyer's medium is made by dissolving 15 g of gum arabic (clear flakes) in 25 ml of distilled water at room temperature. Seventy-five grams of chloral hydrate is added, and the mixture is allowed to stand for 1–2 days, until all solids have dissolved. Five milliliters of glycerol is then added and the mixture is filtered through glass wool and stored in a glass-stoppered bottle.

Anyone familiar with Dr. Marx's methods of work will not be surprised to learn that many of the specimens, when sent to me, bore no locality label whatever. Doubtless he knew where they came from, but left no clew [sic] that others might use. Some of the species were numbered, and by examining several of his series of numbers it was possible to find localities and his name for the species.

However, Banks published illustrations of the two species that can be identified if one disregards the localities stated.

## DISCUSSION

Determination of members of the genus *Mastophora* is the most difficult of araneid spiders. By using morphological characters, 48 presumed species were separated, of which 22 species are new. Eleven of these new species are known from a single female. However, additional specimens were found of species earlier described from only a single specimen.

All females are between 7 and 17 mm and most are approximately 12 mm total length. Most of the species that lack humps on the abdomen seem to be found in North America. A few species of *Mastophora* are slightly smaller and have different tubercles or horns on the carapace; these were placed in *Agatostichus* in the past, but males and females do not differ in other characters from *Mastophora*.

Adult males of all species are approximately 1.7 mm total length. Males of related genera in Asia, Australia, and Africa are the same length. Males of the same species as females with abdominal humps coming from different egg sacs may have humps or not; females without humps may have males with or without humps. The males can be matched to females only by raising them from an egg sac from a determined female. Some males apparently emerge from the egg sac as mature adults (*M. cornigera* and perhaps *M. gasteracanthoides*), but most take at least two instars to mature. The males of only a few species are known, because only W. Eberhard, Mark K. Stowe, and Ken V. Yeargan have raised individuals. The males of most southern South American species remain

unknown. The palpi of different species are surprisingly similar and the determination of males presents a challenge.

Immatures coming out of the egg sac have visible median tubercles and horns on the carapace and are approximately 1.2–1.6 mm total length. They may have abdominal humps.

Some egg sacs can be determined. Those of *M. hutchinsoni* are unique and are attached by their base (Figs. 453, 454), whereas all others are hanging. Some have a thick stalk (*M. bisaccata*; Fig. 446), extra long flaps (*M. phrynosoma*; Figs. 449, 450), or may lack flaps altogether (*M. cornigera*; Fig. 455). However, not enough determined egg sacs were available to make a key.

The epigyna of females are much reduced. Females are separated by their coloration and shape of the abdomen, as well as by their genitalia. However, with so few specimens available of most species, generalizations on appearance are a guess. The most common North American species, *M. bisaccata*, was found to be a group of species with similar abdominal markings. Gertsch (1955) missed this because he relied on coloration and did not carefully examine the genitalia of all specimens. Members of the *M. bisaccata* species group also differ slightly in average size, with *M. bisaccata* being the largest. Gertsch (1955) and Yeargan (1994) suspected *M. bisaccata* to be a group of species.

The epigynum lacks a scape and has no ventral features permitting the palpus to be held in place (Figs. 12, 19, 26). A posterior edge (Figs. 12, 19, 26) may be present. Whatever diagnostic features exist are on the posterior face, which has two slits, a plate between, and a plate to the side (Figs. 13, 20, 27). The plates are usually weakly sclerotized. The slits lead into a ventral, or sometimes dorsal, atrium (Fig. 4), which empties into the seminal receptacles (Fig. 4). The slits vary in direction in different species (Figs. 13, 27). The slits may be in depressions or may



have unique sculpturing along the edges, or a lip (Fig. 20). I considered these to be useful characters for determination of species.

The palpi of males are lightly sclerotized. A median apophysis, a radix, the embolus, and a terminal apophysis holding the embolus are present (Fig. 7). The conductor, a structure that arises from the tegulum facing the embolus, is absent, although it seems to be present in *Cladomelea* species (Fig. 443). The different species of *Ordgarius* and *Cladomelea* show greater morphological differences from each other than do those of *Mastophora*.

Different American species show some variation in genitalia and morphology in different specimens. Perhaps this is associated with the rarity of individuals and wide distribution of species.

All books on venoms list *M. gasteracanthoides* among the venomous American spiders (Schmidt, 2000). These citations all come from Escomel (1918), who described the venom from specimens found in grapes in southern Peru. Farmers working in grapes were bitten on the hands and legs. He considered the bites to be "cutanéohémolytique gangréneux" and gave detailed description of the signs, which were necrotic skin lesions at the site of the bite. B. A. Houssay and J. J. Carbonnel checked the specimens at the time. In borrowed material, Escomel's specimens were found in both the Buenos Aires and in the Paris museums. Examination showed them to be a new species of *Mastophora* (*M. escomeli*), close to *M. gasteracanthoides*. No other evidence of human envenomation appeared with any labels on specimens of other species examined. Gertsch (1955) believed that the responsibility for the bites should be awarded to some other spider or arthropod. I suspect that *M. escomeli*, unlike others, is more aggressive and more readily bites human skin than other species. No recent reports exist of venomous bites from *M. escomeli*. *Mastophora escomeli* may have been abundant in 1917 and then become rare again. Escomel

(1918) also found that extracts from eggs, injected into guinea pigs, were toxic.

*Relationship.* *Mastophora* Holmberg, 1876, shares carapace outgrowths with Australasian *Ordgarius* Keyserling, 1886 (Figs. 422–433), and African *Cladomelea* Simon, 1895 (Figs. 434–444). Both *Ordgarius* and *Cladomelea* species handle the bolas with the second leg and, unlike *Mastophora*, which swings the bolas in a pendulumlike motion, they whirl the bolas, *Ordgarius* when a moth approaches, and *Cladomelea* for 15 minutes at a time when hunting, at approximately 150 rotations per minute (Leroy et al., 1998).

The carapace outgrowths also are shared with the African *Acantharachne* Tullgren, 1910,<sup>3</sup> Madagascan *Coelossia* Simon, 1895, Madagascan *Exechocentrus* Simon, 1889, and immatures of *Euglyptila* Simon, 1908, from northern Vietnam (Tonkin). *Euglyptila* is synonymized below with *Ordgarius*. The males of these and their habits are not known, but females were illustrated and described by Emerit (1980, 2000). The genus *Agatostichus* Simon, 1895, is synonymized below with *Mastophora*, and *Dicrostichus* Simon, 1895, has been synonymized with *Ordgarius* by Davies (1988). The *Mastophora*, *Ordgarius*, *Dicrostichus*, *Cladomelea* group is absent from European, Mediterranean, and central Asian faunas.

When males are found, African *Acantharachne* and *Coelossia* should probably be synonymized with *Cladomelea* or *Ordgarius*. However, *Exechocentrus* differs in having a long eye projection, a long median tubercle, and a pair of long, posterior tubercles on the carapace (Emerit, 1978, 1980, 2000).

Eberhard (1981), Stowe (1986), and Yeargan (1994) studied the relationships with other genera. Scharff and Coddington

<sup>3</sup> Roever (1942) and Platnick (2001) cited the genus under the name *Acantharanea* Strand, 1929. The name *Acantharachne* Tullgren, 1910, is not preoccupied, as thought by Strand (Neave, 1939a: 9; Bonnet, 1955: 124).

constructed a cladogram (1998). The results of Eberhard (1981), Stowe (1986), and Yeargan (1994) are summarized in Table 1; examination of these results showed a close relationship of *Mastophora* to *Taczanowskia* Keyserling, 1880. Members of the genus *Mastophora* seem related to genera lacking carapace tubercles (*Taczanowskia*, *Celaenia*, *Kaira*, *Cyrtarachne*, *Poecilopachys*, and *Pasilobus*; Table 1). Robinson and Robinson (1975) first suggested that the web of *Pasilobus* was intermediate between orb webs and bolas. My own studies of genitalia of *Taczanowskia* (Levi, 1997) showed that *Taczanowskia* is related to *Celaenia* and *Kaira*. The distal pocket of the epigynal scape of *Taczanowskia* correlates with the large hook on the median apophysis of the palpus of the male (Levi, 1997, fig. 19). Unequal claw lengths and armed femora, which are synapomorphies, relate *Taczanowskia* and *Celaenia*. The denticles next to a tooth on the side of the median apophysis of *Taczanowskia* also are found in *Kaira* species and *Metepeira*. Such median apophysis denticles are unique to several genera and I consider such a row of denticles as a synapomorphy of *Kaira*, *Metepeira*, and *Taczanowskia*. One of the synapomorphies of most genera allied to *Araneus* is a spine or tooth on the median apophysis. In contrast, males that have a paramedian apophysis in the palpus rarely have a tooth or spine on the median apophysis (e.g., *Alpaida*, *Eriophora*, *Ocrepeira*, *Acacesia*, *Cyrtophora*, and many others). The shape of the median apophysis of the palpus of *Pasilobus* also probably is derived from a median apophysis similar to that of *Kaira*. The presence of a spine on the median apophysis of all these genera with carapace outgrowths indicates a distant relationship with *Araneus*. All these genera have a terminal apophysis (Fig. 7) in the palpus, which was erroneously labeled as a conductor by some authors. The evidence from the study of genitalia thus shows that attraction of insects in *Kaira* and *Mastophora* most likely evolved only once, not

twice as thought previously (Stowe, 1986; Table 2). The homology of secreting glands of the insect attractant in *Mastophora* and *Kaira* remains uncertain.

## TAXONOMIC SECTION

### *Mastophora* Holmberg

*Mastophora* Holmberg, 1876: 112. Type species *M. extraordinaria* Holmberg by monotypy. The gender of the name is feminine. Neave, 1940: 55. It is not preoccupied as claimed by Bonnet, 1957: 1995. Mello-Leitão, 1931: 65. Canals 1931: 17. Roewer, 1942: 900. Gertsch, 1955: 223. Platnick, 2001.

*Heterocephala* Holmberg, 1876: 143. Type species *H. confifera* Holmberg by monotypy. The gender of the name is feminine. Neave, 1939b: 634. It is not preoccupied.

*Glyptocranium* Simon, 1895: 885. Type species *G. cornigerum* Hentz designated by Simon. Neave, 1939b: 484. The gender of the name is neuter. Bonnet, 1957: 1995. First synonymized by Brèthes, 1909.

*Agatostichus* Simon, 1895: 885. Type species *A. leucacantha* Simon by original designation and monotypy. Neave, 1939a: 86. Gertsch, 1955: 250. NEW SYNONYMY.

*Agathostichus*:—Simon, 1895: 473. Roewer, 1942: 900. Bonnet, 1955: 181. Platnick, 1998, 2001.

*Note.* Simon spelled the generic name *Agatostichus* with and without “h,” but the first revisor of the genus, Gertsch (1955), spelled the genus without “h.” Subsequent users must follow the first revisor (*International Code of Zoological Nomenclature*, art. 24.2 [International Commission on Zoological Nomenclature, 1999]). The genus is synonymized here because the type species *M. leucacantha* has long median tubercles on the carapace (Fig. 316). The second species described, *M. leucabulba* Gertsch, lacks these but has a tubercle between the posterior median eyes and is relatively small (Fig. 288). Gertsch thought small size was diagnostic for the genus, but this is not the case for the third species, *M. alvareztoroi*, and also not for the type species. Tubercles also are found between eyes in *M. corpulenta* (Figs. 336, 337).

A revision of all species of the genus was made by Mello-Leitão (1931) and a revision of Argentinian species was made by Canals (1931). Both authors had shared information. I could not find dates of pub-

TABLE 1. THE FOOD OF IMMATURES AND ADULTS, STICKINESS OF SILK TO MOTHS, SILK PULLING BEHAVIOR AND WEB (SEE EBERHARD, 1981), RESTING PLACE, EGG SAC SHAPE, AND REGURGITATION OF *MASTOPHORA* AND RELATED GENERA (DATA FROM CLYNE, 1973; EBERHARD, 1981; EMERIT, 1978; MIYASHITA ET AL., 2001; ROBINSON AND ROBINSON, 1975; STOWE, 1986; YEARGAN, 1994; LEROY, PERSONAL COMMUNICATION). REGARDING SILK PULLING BEHAVIOR AND THE WEB, EBERHARD (1981) STATED: "ALL ACTIVELY PULL STICKY SILK FROM THEIR SPINNERETS WHILE HANGING MORE OR LESS VERTICALLY BELOW A HORIZONTAL THREAD (E.G. FIG. 4B IN ROBINSON AND ROBINSON 1975)." "THE *M. DIZZYDEANI* WEB WHICH HAD SEVERAL BALLS HANGING FROM A SINGLE HORIZONTAL THREAD IS SIMILAR TO A *PASILOBUS* WEB: IF ONE BREAKS THE LOW-SHEAR JOINTS AT THE ENDS OF *PASILOBUS* SPINNING THREADS SO THAT THEY HANG FROM THE MIDDLE, THE WEBS ARE NEARLY IDENTICAL. THE WEB OF *CYRTARACHNE* SP. . . . IS VERY SIMILAR TO THAT OF *POECILOPACHYS*, AS IS ITS BUILDING BEHAVIOR."\*

Genus	Food of Immatures	Food of Adults	Sticky Silk	Silk Pulling	Web	Resting Place	Egg Sac Shape	Regurgitation
<i>Mastophora</i>	♂ psychodid flies	♂ moths	bolas slung leg 1	+	+	usually exposed	drop-shaped	+
<i>Ordigarius</i>	♂ moths	♂ moths	bolas whirled leg 2	+	+	retreat in leaves or exposed	drop or spindle shaped	not observed
<i>Cladomelea akermani</i>	small flies	♂ moths	bolas whirled leg 2	+	+	exposed	drop-shaped	not observed
<i>Pasilobus</i>		moths	sticky silk in web sticks to moths	+	+	exposed	spindle-shaped	
<i>Poecilopachys</i>		usually small moths	sticky silk in web sticks to moths	+	+	exposed	spindle-shaped	+
<i>Cyrtarachne</i> sp.		moths	sticky silk in web sticks to moths	+	+	exposed	spindle-shaped	
<i>Celaenia</i>	♂ psychodid flies	♂ moths	use legs; femur and claws modified		no web	same as hunting position	drop-shaped	-
<i>Taczanowskia</i>		♂ moths	use legs; femur and claws modified		no web	same as hunting position	drop-shaped	
<i>Kaira</i>		♂ moths	use legs				soft cover, spherical	-

\* +, character present; -, character absent; blank, no observation.



TABLE 2. MORPHOLOGICAL DATA FOR MASTOPHORA AND RELATED GENERA, INCLUDING LEG MODIFICATION OF ADULT FEMALE (LACK OF MACROSETAE [MS], ARMED FEMUR, LONG TARSAL CLAW); VENTER OF EPIGYNUM (BARE, WITH ONLY POSTERIOR LIP, AN UNSCLEROTIZED SCAPE); POSTERIOR OF EPIGYNUM (TWO SLITS, WITH OVAL MEDIAN PLATE, AND OTHERWISE); PERCENTAGE OF MALE CARAPACE WIDTH OF FEMALE CARAPACE; NUMBER OF PALPAL PATELLAR SETAE; THE PRESENCE AND SHAPE OF CONDUCTOR IN PALPUS (ABSENT, A LOBE, OR A SCLERITE); MEDIAN APOPHYSIS (WITH SPINE, TWO THIN SPINES, AND ROW OF DENTICLES); EMBOLUS (DAGGER-SHAPED OR FILAMENTOUS); PRESENCE AND SIZE OF TERMINAL APOPHYSIS. THE PALPI OF ALL HAVE A RADIX; NONE HAS A PARAMEDIAN APOPHYSIS. ALL LACK AN ENDITE TOOTH, USUALLY PRESENT IN MALES OF ARANEIDAE, BUT ABSENT IN ARGIOPE, MECYNOCCEA and CYRTOPHORA AND ALSO IN DWARF MALES (FROM MY OWN DATA WITH THE HELP OF TEXT AND ILLUSTRATIONS BY CLYNE, 1973; EMERIT, 1977; DAVIES, 1988; LEVY, 1997; LEROY ET AL., 1998.\*

Genus and Species	Leg Modification	Venter of Epigynum	Posterior of Epigynum	♂ % ♀ Carapace Width	Number Palpal Patellar Setae	Palpus Conductor	Palpus Median Apophysis	Palpus Embolus	Terminal Apophysis
<i>Mastophora</i>	no MS	bare	2 slits	15	0/1	-	spine	dagger-shaped	+
<i>Ordgarius magnificus</i>	no MS	bare	2 slits	12	0	-	spine	dagger-shaped	+
<i>Cladomela akermani</i>	no MS	bare	2 slits	14	0	lobe	spine	filament	+
<i>Pasilobus bufonius</i>	MS	bare	2 slits	34	0	lobe	spine	dagger-shaped	+
<i>Poecilopachys bispinosa</i>	MS?	bare	2 slits, oval	36	1	-	spine	dagger-shaped	+
<i>Celaenia excavata</i>	denticulated femur; unequal claws	bare, hard lobe	hard posterior plate	20	0	-	spine	dagger-shaped	+
<i>Taczanowskia striata</i>	denticulated femur; unequal claws	soft scape	2 slits oval median	32	1	lobe	spine, teeth	dagger-shaped	+
<i>Kaira alba</i>	MS	soft scape	2 slits oval median	22	0	lobe	two spined teeth	dagger-shaped	large
<i>Cyrtarachne ivodoides</i>	MS	bare	2 slits	47	1	lobe	spine	filament	-

\* +, character present; -, character absent.

lication of the two 1931 articles, but Mello-Leitão's must have been published first, because Canals cites the page numbers of Mello-Leitão. Gertsch (1955) revised the North American species, and first illustrated the genitalia of the species of his region.

*Diagnosis.* *Mastophora* differs from other araneid genera by having the carapace with tubercles and having horns (Fig. 8), and lacking macrosetae on legs (Figs. 5, 6, 421). Early instars and males have rows of setae on distal articles of first and second legs (Figs. 5, 6). *Mastophora* differs from *Cladomelea* and *Ordgarius*, which may have horns (Fig. 423), by using the first pair of legs to handle the bolas; *Cladomelea* and *Ordgarius* use the second pairs.

*Description.* Female. Carapace color variable, often uniform orange to strongly marked. Legs usually not banded. Abdomen often darker anteriorly, lighter posteriorly, venter often with a median white square or rectangle (black in *M. hutchinsoni* and some *M. phrynosoma*). Carapace about as wide as long. Eyes small, subequal. Anterior median eyes slightly larger, lateral eyes smallest. Median ocular trapezoid always longer than wide, widest at posterior median eyes, rarely almost square. Lateral eyes and medians usually on a bulge. Clypeus higher than two anterior median eye diameters. Carapace very high, with median tubercles, a pair of horns, usually biforked, and laterally with medium to less large tubercles (Figs. 8, 9), sometimes with short white setae. Chelicerae with two or three teeth on the anterior margin, one on the posterior margin (*M. bisaccata* has two or three teeth; Fig. 1). Legs without macrosetae, early instars with row of setae on legs as in mature males (Fig. 5). Length of first patella and tibia about 1.1 to 1.8 times width of carapace. Second leg longer than first, third shortest. Abdomen wider than long usually with a pair of humps, and a pair of sclerotized discs between humps and anterior margin (Fig. 10), sometimes with additional tubercles or scattered clumps of setae

or setose. Some species (*M. alvareztoroi*, *M. felis*, and *M. haywardi*) have carapace and abdomen hirsute (Figs. 107–109). The tubercles on the carapace and on horns are not perfectly symmetrical and show individual differences. The abdominal humps of some species (*M. gasteracanthoides*) are of variable length.

Male. Mature after only two instars or emerging as adult from egg sac (*M. cornigera*), all about 1.7 mm total length. Dirty orange color, sometimes with white spots on carapace or abdomen. Carapace as wide as long with eyes on bulges as in female. Carapace with two median tubercles and minute horns. Legs without macrosetae but with row of soft setae on first two pairs of legs, slightly shorter than in females (Figs. 5, 6). Total length of first patella and tibia about 1.1 times width of carapace. Abdomen with or without humps, often in the same species, regardless of the presence of humps on the female abdomen.

Female genitalia. The epigynum has plates on the ventral side, and differs only slightly from other species in posterior view (Figs. 2, 13, 20, 27) but has lost all copulatory structures. The posterior has two slits with shadows of atria.

Male genitalia. Palpus of male has a pointed median apophysis, an embolus with a simple terminal apophysis (Fig. 7), but no distinct conductor.

One group of *Mastophora* is distinct: the species close to *M. gasteracanthoides* (*corpulenta*, *rabida*, *escomeli*, *obtusa*, *felis*, *holmbergi*, *reimoseri*, *satan*, and *diablo*). Their carapace is high with vertical sides (Fig. 408); the sides of the thorax have tubercles (Fig. 409), with short, white setae between; and the abdomen may have high, tube-shaped horns (Fig. 413). The abdomen of all is dark and species can be separated only by studying the genitalia. They have been referred to in Spanish as the cat's head spiders (*araña cabeza de gato*) because of their resemblance to the head of a cat, as can be seen in Figure 421.



Map 1. Approximate number of species in various American regions.

*Relationship.* Relationships with other genera are discussed above.

*Natural History.* *Mastophora* all are uncommon and difficult to find. Females rest on branches or leaves of trees, usually 1.5–3 m high. M. K. Stowe (personal communication) has seen egg cases 10 m up and thinks that *M. bisaccata* seeks out branches high up in trees. They often are found on trees and bushes in orchards, gardens, or along fences. M. K. Stowe (personal communication) reported that most species in Florida are found in forests.

*Distribution.* *Mastophora* are only found in America (Map 1).

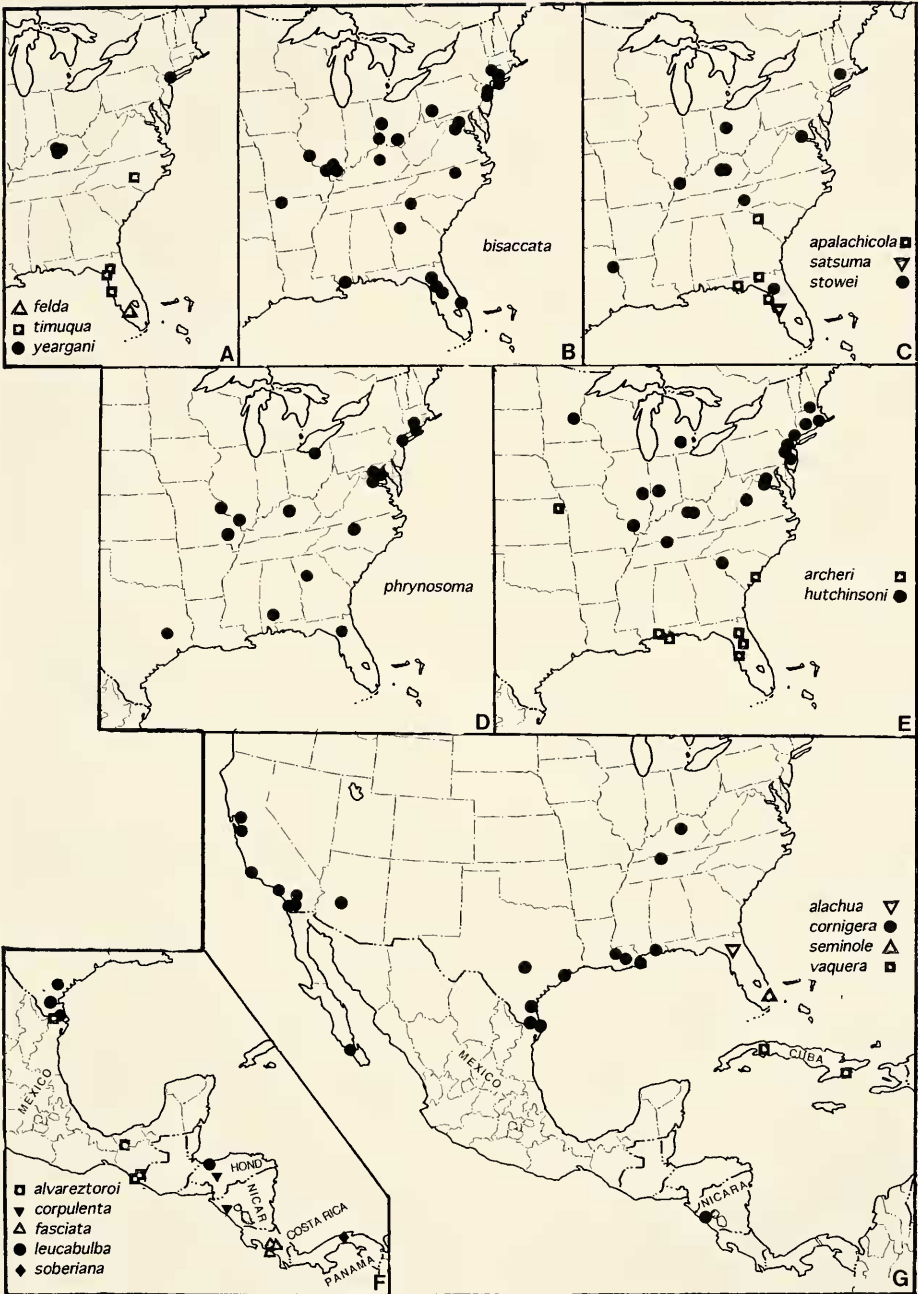
*Misplaced Species.* *Mastophora fasciolata* erroneously placed in *Mastophora* (Levi, 1991: 180) is a *Kaira*. See below.

KEY TO FEMALE MASTOPHORA

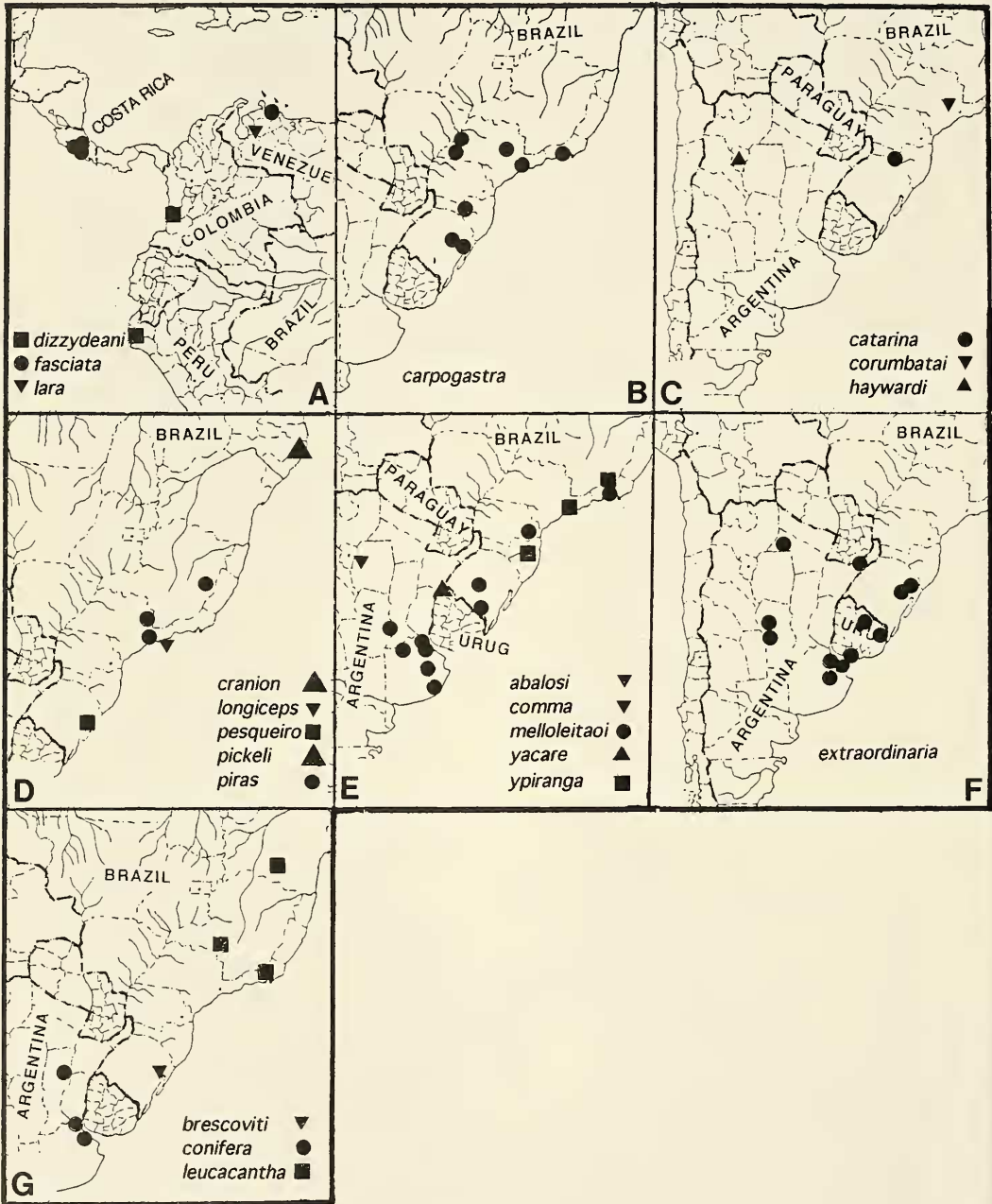
- 1. Abdomen without humps (Figs. 10, 24, 88, 130); swellings may be visible in profile (Fig. 11) ..... 2
- Abdomen with distinct humps or tubercles (Figs. 137, 145, 298, 331, 401) ... 15
- 2(1). North America (Map 2) ..... 3
- South America (Maps 3, 4) ..... 11
- 3(2). Abdomen subtriangular, with anterior



	lateral swellings (Fig. 88); posterior of epigynum with lateral and ventral lips (Fig. 91); eastern United States (Map 2D) ..... <i>phrynosoma</i>	
-	Abdomen without anterior lateral swellings (Figs. 10, 17, 24); epigynum without posterior lips (except <i>apalachicola</i> )	4
4(3).	Posterior of epigynum with slits framed by lateral lips (Fig. 20); southeastern United States (Map 2C) ..... <i>apalachicola</i>	5
-	Slits without lips (Figs. 13, 27)	5
5(4).	Slits short, their length distant from ventral margin (Fig. 80); eastern United States (Map 2A) ..... <i>yeargani</i>	6
-	Slits approaching close to ventral margin (Figs. 13, 27)	6
6(5).	Dorsum of abdomen with <i>bisaccata</i> pattern, anterior orange to gray with spaces and lines (Figs. 42, 53, 65)	7
-	Abdomen marked otherwise (Figs. 10, 24)	9
7(6).	Slits approaching each other ventrally, atria their diameter or less apart (Figs. 56, 57); eastern United States (Map 2B) ..... <i>bisaccata</i>	8
-	Slits parallel or separating ventrally (Figs. 45, 68)	8
8(7).	Slits parallel (Fig. 45), atria visible in ventral view (Figs. 44); Florida (Map 2G) ..... <i>alachua</i>	
-	Atria slightly separating ventrally (Figs. 68-70), atria not visible ventrally (Figs. 67); eastern United States (Map 2C) ..... <i>stowei</i>	
9(6).	Atria separating from each other ventrally (Figs. 34, 35); legs ringed; Virginia to Florida (Map 2A) ..... <i>tinuqua</i>	10
-	Atria approaching each other (Figs. 13, 27); Florida	10
10(9).	Abdomen black on anterior and sides (Figs. 24, 25); atria anterior of seminal receptacles, seminal receptacles their diameter distant from ventral border (Fig. 28); southern Florida (Map 2A) ..... <i>felda</i>	
-	Abdomen with only anterior median area black (Fig. 10); atria at level with large seminal receptacles, seminal receptacles less than their diameter distant from ventral border (Fig. 14); Florida (Map 2C) ..... <i>satsuma</i>	
11(2).	Abdomen hirsute (Figs. 109, 110), slits and atria separating ventrally (Figs. 112, 113); Tucumán, Argentina (Map 3C) ..... <i>haywardi</i>	12
-	Abdomen with few setae (Figs. 102, 116); atria otherwise (105, 119)	12
12(11).	Abdomen with many black spots and dark lines (Figs. 130, 131); southern Brazil (Map 3B) ..... <i>carpogastra</i>	
-	Abdomen marked otherwise (Figs. 102, 116, 123)	13
13(12).	Abdomen with light longitudinal lines (Figs. 102, 103); atria approaching each other ventrally (Fig. 105); Santa Catarina, southern Brazil (Map 3C) ..... <i>catarina</i>	
-	Abdomen marked otherwise (Figs. 116, 123)	14
14(13).	Abdomen marked with pair of black rings, open anteriorly (Fig. 116); São Paulo, Brazil (Map 3C) ..... <i>corumbatai</i>	
-	Abdomen with two black discs (Fig. 123); Lara, Venezuela (Map 3A) ..... <i>lara</i>	
15(1).	Abdomen with many dorsal or lateral humps (Figs. 267, 298, 300, 310, 331, 332)	16
-	Abdomen with one pair of humps (Figs. 155, 171), rarely median area of abdomen swollen (Fig. 325)	19
16(15).	Humps anterior on each side of abdomen (Fig. 267); Santiago del Estero, Argentina (Map 3E) ..... <i>abalosi</i>	
-	Humps or tubercles dorsally (Figs. 298, 310, 331)	17
17(16).	Carapace with short tubercles (Figs. 329, 330); abdomen with numerous small dorsal tubercles (Figs. 331, 332); northern Argentina to Buenos Aires Province (Map 3G) ..... <i>confifera</i>	
-	Carapace with large tubercles (Figs. 297, 309)	18
18(17).	Carapace with median tubercles spine-shaped (Fig. 309); Panama (Map 2F) ..... <i>soberiana</i>	
-	Carapace with median tubercles cone-shaped (Fig. 297); Texas to Chiapas (Map 2F) ..... <i>alvareztoroi</i>	
19(15).	Carapace median tubercles same size or longer than horns (Figs. 288, 316, 323)	20
-	Carapace with median tubercles smaller than horns (Figs. 136, 381)	22
20(19).	Median tubercles spine-shaped, very long (Fig. 316); Bahia to Rio de Janeiro, Brazil (Map 3G) ..... <i>leucacantha</i>	
-	Median tubercles otherwise (Figs. 288, 323)	21
21(18).	Median tubercles cone-shaped (Fig. 323); Rio Grande do Sul, Brazil (Map 3G) ..... <i>brescoviti</i>	
-	Carapace tubercles large, rounded on dark carapace (Fig. 288); Texas, Mexico (Map 2F) ..... <i>leucabulba</i>	
22(19).	Carapace with sides vertical (Figs. 366, 380), sides with tubercles (Figs. 367, 381); Mexico to South America (Map 4)	39
-	Carapace with sides slanting (Figs. 135, 169); sides with few or no tubercles (Figs. 136, 170; Maps 2, 3)	23



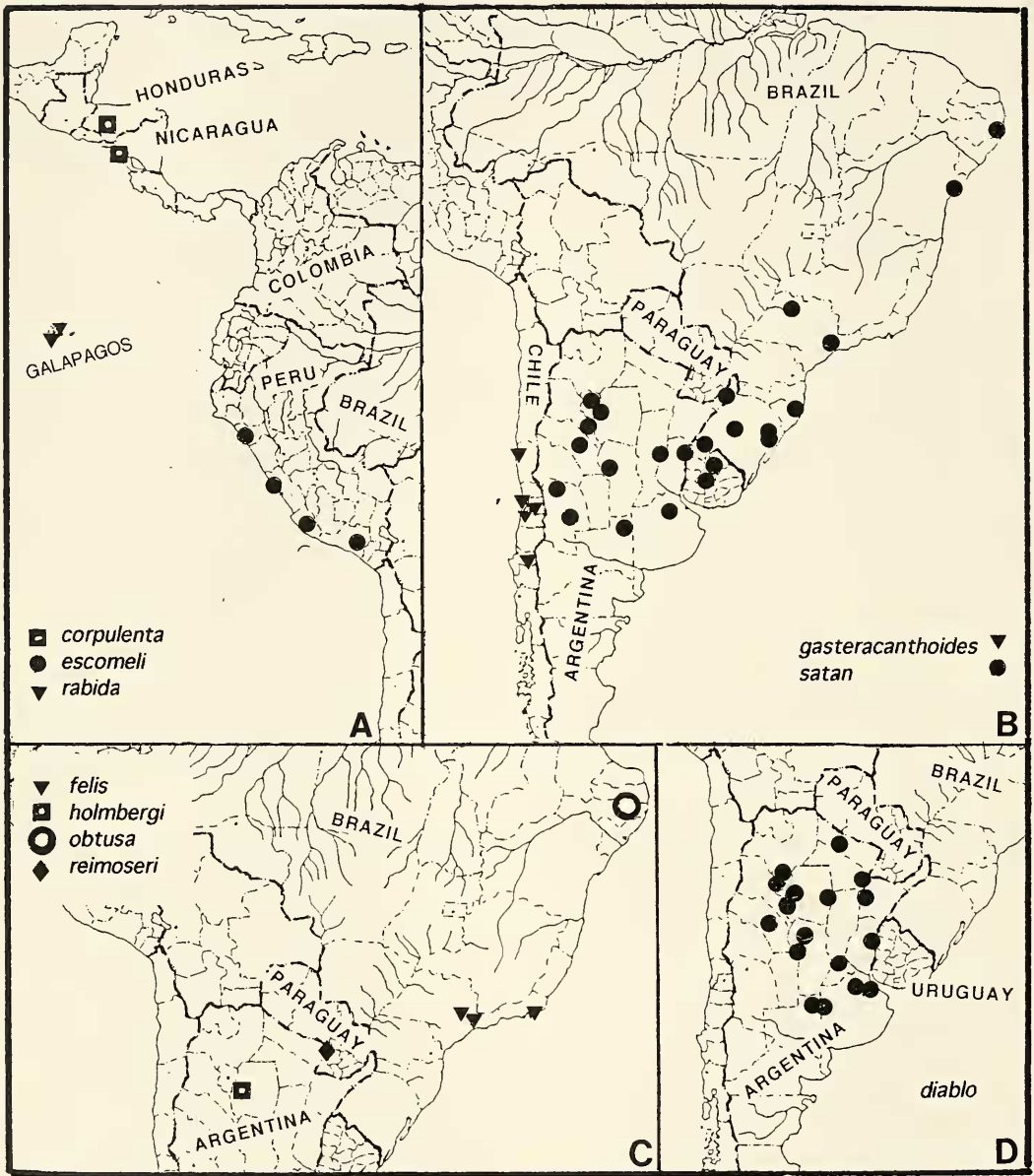
Map 2. Distribution of *Mastophora* species of North and Central America.



Map 3. Distribution of *Mastophora* species of South America.



23(22). North America and Cuba (Map 2) .....	24	–	Epigynal slits and atria approaching each other ventrally (Figs. 256, 286) .....	36
– Central and South America (Map 3) .....	28	35(34). Abdomen with a pair of dorsal stippled dark spots (Fig. 225); Pernambuco State, Brazil (Map 3D) .....	<i>cranion</i>	
24(23). Cuba (Map 2C); abdomen with anterior, lateral swellings (Figs. 145, 146) .....		–	Anterior of abdomen black (Fig. 246); Minas Gerais, São Paulo states, Brazil (Map 3D) .....	<i>piras</i>
– Continental North America; abdomen without lateral swellings (Figs. 137, 155) .....	25	36(34). Anterior of abdomen light, light area bordered posteriorly by dark (Fig. 283); epigynum as in Fig. 286; southern Brazil, northern Argentina (Map 3F) .....	<i>extraordinaria</i>	
25(24). Posterior of epigynum with slits and atria approaching each other ventrally (Figs. 159, 160); northeastern United States (Map 2E) .....	<i>hutchinsoni</i>	–	Anterior of abdomen black (Figs. 218, 253, 276) .....	37
– Slits and atria otherwise (Figs. 140, 174, 188) .....	26	37(36). Atria their diameter or less apart (Figs. 256, 257); Rio de Janeiro to Santa Catarina, Brazil (Map 3E) .....	<i>ypiranga</i>	
26(25). Posterior of epigynum with slits framed by a lip on each side (Fig. 188); southeastern United States (Map 2E) .....	<i>archeri</i>	–	Atria more than their diameter apart (Figs. 221, 222, 279, 280) .....	38
– Slits without lips (Figs. 140, 174) .....	27	38(37). Atria with median knobs facing each other (Fig. 280); Paraná to Buenos Aires, Argentina (Map 3E) .....	<i>melloleitai</i>	
27(26). Slits parallel and approach ventral border (Fig. 174); eastern United States to California and Honduras (Map 2C) .....	<i>cornigera</i>	–	Atria without knobs (Fig. 222); Pernambuco, Brazil (Map 3D) .....	<i>pickeli</i>
– Slits short, their length apart from ventral border (Fig. 140); southern Florida .....	<i>seminole</i>	39(22). Central America (Map 4A); posterior of epigynum with dark patch dorsally in each of pair of depressions (Fig. 341) .....	<i>corpulenta</i>	
28(23). Central America and northern South America to Peru .....	29	– Other regions .....	40	
– Southern South America, from Pernambuco State, Brazil, in the north .....	30	40(39). Galapagos (Map 4A); abdomen with only tiny humps (Fig. 346); epigynum slits each with a loop ventrally (Figs. 348, 349) .....	<i>rabida</i>	
29(28). Humps of abdomen broad swellings (Fig. 196); slits on posterior of epigynum approaching each other (Fig. 199); Costa Rica to Venezuela (Map 3A) .....	<i>fasciata</i>	–	Other regions; abdomen with larger humps .....	41
– Humps of abdomen narrow (Fig. 207); slits separating ventrally (Fig. 210); Colombia to Peru (Map 3A) .....	<i>dizzydeani</i>	41(40). Peru (Map 4A); posterior of epigynum, between slits, with median area having a bulge on each side (Fig. 355) .....	<i>escomeli</i>	
30(28). Humps of abdomen extended to a point (Figs. 271, 272); Santiago del Estero, Argentina (Map 3E) .....	<i>comma</i>	–	Other regions .....	42
– Humps distally rounded (Figs. 277, 284) .....	31	42(41). Chile (Map 4B); posterior of epigynum with a dark spot dorsally in each adjacent depression (Fig. 415) .....	<i>gasteracanthoides</i>	
31(30). Each side of abdomen with a pair of narrow dark-framed longitudinal, white marks (Figs. 239, 240); humps small (Fig. 240); Rio Grande do Sul, Brazil (Map 3D) .....	<i>pesqueiro</i>	–	Brazil to Argentina .....	43
– Abdomen without such marks .....	32	43(42). Abdomen with humps placed on swollen area (Figs. 364, 365); Pernambuco State, Brazil (Map 4C) .....	<i>obtusa</i>	
32(31). Posterior of epigynum with a lip on each side between slits and ventral margin (Fig. 263); Uruguay (Map 3E) .....	<i>yacare</i>	–	Humps not placed on swollen area (Figs. 368, 369) .....	44
– Posterior of epigynum without such lips (Figs. 279, 286) .....	33	44(43). Dark patch (atria) placed dorsal or middle of seminal receptacles (Figs. 392, 404) .....		45
33(32). Epigynal slits appear forked (Figs. 235, 236); carapace horns unusually thick and laid back (Figs. 230, 231); São Paulo, Brazil (Map 3D) .....	<i>longiceps</i>	–	Atria absent or placed ventrally of seminal receptacles (Figs. 372, 379, 386) .....	46
– Epigynal slits simple (Figs. 249, 256); horns small (Figs. 245, 252) .....	34	45(44). Posterior of epigynum with dark patch (atria) dorsal within a depression (Figs. 392, 394, 395); Pernambuco, Brazil, to central Argentina (Map 4B) .....	<i>satan</i>	
34(33). Epigynal slits separating ventrally (Figs. 228, 249) .....	35			



Map 4. Distribution of *Mastophora* species of the *M. gasteracanthoides* group.

- Atria lateral, placed outside of depression (Fig. 404); northern, central Argentina (Map 4D) ..... *diablo*
- 46(44). Posterior of epigynum with slits with a ventral bend (Fig. 385); Paraguay (Map 4C) ..... *reimoseri*
- Slits without such bend (Figs. 371, 378) ..... 47
- 47(46). Posterior of epigynum with slits separating ventrally and with lateral lip (Figs. 371, 372); Rio de Janeiro, São Paulo, Brazil (Map 4C) ..... *felis*

Slits parallel (Fig. 378); Paraguay, Santiago del Estero (Map 4C) — *holmbergi*

KEY TO KNOWN NORTH AMERICAN MALE  
*MASTOPHORA*

- 1. Space surrounded by median apophysis, in ectal view of palpus, longer than wide (Figs. 50, 62, 74, 164, 168) ..... 2
- Space surrounded by median apophysis wider than long (Figs. 39, 85, 96, 99, 179, 182); terminal apophysis usually shorter than embolus (Figs. 37, 83, 94) ..... 5
- 2(1). Terminal apophysis shorter than embolus (Fig. 48); median apophysis of palpus very short (Figs. 48–50); Florida (Map 2G) ..... *alachua*
- Terminal apophysis as long or longer than embolus (Figs. 7, 60) ..... 3
- 3(2). Base of embolus large (Figs. 60, 61); eastern United States (Map 2B) — *bisaccata*
- Base of embolus small (Figs. 72, 73) ..... 4
- 4(3). Base of median apophysis rounded (Figs. 162, 166); in ectal view, narrow part of median apophysis shorter than base (Figs. 164, 168); northeastern United States (Map 2E) — *hutchinsoni*
- Base of median apophysis angular (Fig. 72, 73); in ectal view, narrow part of median apophysis as long or longer than width of base (Fig. 74); eastern United States (Map 2C) ..... *stouei*
- 5(1). Terminal apophysis almost as long as embolus (Figs. 94, 177, 180) ..... 6
- Terminal apophysis about half length or less of embolus (Figs. 83, 191) ..... 7
- 6(5). Base of median apophysis longer than wide (Figs. 177, 180); southern United States to California and Central America (Map 2G) ..... *cornigera*
- Base of median apophysis short (Figs. 94, 98); eastern United States (Map 2D) ..... *phrynosoma*
- 7(5). Base of median apophysis large, touching embolus (Figs. 83, 84); eastern United States (Map 2A) ..... *yeargani*
- Base of median apophysis small (Figs. 37, 191) ..... 8
- 8(7). Length of narrow part of median apophysis as wide as base in ectal view (Fig. 193); Gulf Coast, Kansas (Map 2E) — *archeri*
- Length of narrow part of median apophysis longer than width of base (Fig. 39); Virginia to North Carolina (Map 2A) ..... *timuqua*

*Kaira altiventer* (O. P.-Cambridge), new combination

*Epeiroides fasciolata* O. P.-Cambridge, 1889: 15, pl. 8, fig. 5, ♂. Male from Bugaba, Panama, in BMNH, examined; now lost. Keyserling, 1893: 309, pl. 16, fig. 228, ♂. Male from Guatemala.

*Kaira altiventer* O. P.-Cambridge, 1889: 56, pl. 3, fig. 13, ♀. Female from Veragua [Veraguas Prov.], Panama, in BMNH, examined. Levi, 1993b, 213, figs. 3–22, ♀, ♂. NEW SYNONYMY.

*Aranea fasciolata*: —F. P.-Cambridge, 1904: 519, pl. 51, fig. 5, ♂. Claims that Keyserling's specimen is lost and probably was misidentified according to F. P.-Cambridge, 1904.

*Note.* *Epeiroides fasciolata* is a *Kaira*. My unpublished illustration of the holotype of *E. fasciolata* shows the distinct large median apophysis tooth at the base of the flagella, the characteristic curved, long, soft conductor, and the drop-shaped, sclerotized terminal apophysis of *Kaira altiventer* (Levi, 1993b, figs. 20, 21).

I examined the type in 1967, when visiting the BMNH, and made a drawing of the palpus of the male, thinking erroneously that the species is a *Mastophora*. But the palpus is not that of *Mastophora*. Neither O. P.-Cambridge, F. P.-Cambridge, or Keyserling showed carapace tubercles. I overlooked the species when revising *Kaira*. Since 1967, the holotype has been misplaced and cannot be found.

*Mastophora satsuma* new species  
Figures 8–14; Map 2C

*Holotype.* Female holotype from Riverview, 11 mi. [17.6 km] SE of Tampa, on Highway 301, Hillsborough Co., Florida, on satsuma, *Citrus nobilis* (tangerine tree), 23 Aug. 1966 (E. R. Simmons), in FSCA. The specific name is a noun in apposition after the tree on which the holotype was collected.

*Description.* Female holotype. Carapace orange-brown. Chelicerae, labium, endites light brown. Sternum grayish orange. Coxae and distal leg articles brown. Abdomen dorsum whitish with dark gray frame having a lobe extending posteriorly to midline (Fig. 10); venter gray with white square. Carapace, with few tubercles (Figs. 8, 9) and short white setae. Abdomen without humps (Fig. 10). Total length 9.6 mm.

Carapace 4.4 mm long, 4.0 wide in thoracic region, 2.4 wide at lateral eyes. First femur 4.1 mm, patella and tibia 5.2, metatarsus 3.5, tarsus 1.0. Second patella and tibia 4.0 mm, third 2.3, fourth 3.6. Length of first patella and tibia 1.1 times width of carapace.

Males are not known.

*Variation.* The epigynum is asymmetrical: the left slit is more curved than the right one and the left seminal receptacles are larger than the right ones (Fig. 14). Both seminal receptacles are oval.

*Diagnosis.* *Mastophora satsuma* is distinguished from *M. felda* (Figs. 22–28) by being smaller, by differences in dorsal pattern (Fig. 10), by having larger seminal receptacles (Fig. 14), and also by the larger depression in the midline of the epigynum (Fig. 14).

*Distribution.* Central Florida (Map 2C).

*Specimens Examined.* No other specimens have been found.

***Mastophora apalachicola* new species**  
**Figures 15–21; Map 2C**

*Holotype.* Female holotype from ravine, Bristol, Calhoun Co., Florida, 29 Dec. 1939 (A. F. Archer), in AMNH. The specific name is a noun in apposition after the name of the river at the locality.

*Description.* Female holotype. Carapace contrastingly marked, sides dark brown, dorsum light brown anteriorly, pair of forks lightest brown (Figs. 15, 16). Chelicerae yellow-white with a dark patch on sides. Labium, endites dark brown. Sternum anterior light, posterior dark brown. Coxae dusky brown, fourth darkest. Distal leg articles yellow-white, femora and patellae with brown bands. Abdomen white (Fig. 17), dorsum with a pair of black spots, venter with white square containing three pairs of black dots. Carapace with few tubercles, with very large forked horns and with short white setae on sides (Figs. 15, 16). Median eyes on bulge, lateral eyes on bulges. Abdomen without humps and with large distinct dorsal pair of discs (Fig. 17). Total length 8.8 mm. Carapace 3.5 mm long, 3.4 wide in thoracic region, 2.2

wide at lateral eyes. First femur 3.3 mm, patella and tibia 4.4, metatarsus 3.2, tarsus 1.0. Second patella and tibia 3.3 mm, third 1.8, fourth 3.0. Length of first patella and tibia 1.3 times width of carapace.

Males are not known.

*Variation.* Total length of females 8.8 to 9.0 mm. The specimen from Levy County has the atria larger and more spherical than those of the holotype (Fig. 21); the one from Hamilton Co. has the atria larger and the seminal receptacles much larger. The illustrations were made from the holotype.

*Diagnosis.* *Mastophora apalachicola* is distinguished from others by the contrasting carapace coloration (Figs. 15, 16), the abdomen lacking humps, lacking dorsal color pattern, and having large dorsal discs (Fig. 17). The horns (Fig. 15) are larger than those of *M. timuqua* (Fig. 29) and *M. satsuma* (Fig. 8). The epigynum, unlike that of similar species, has a lip on each side; the slits are in a slight depression (Fig. 20). The epigynal slits and atria are almost parallel (Figs. 20, 21).

*Distribution.* South Carolina to northern Florida (Map 2C).

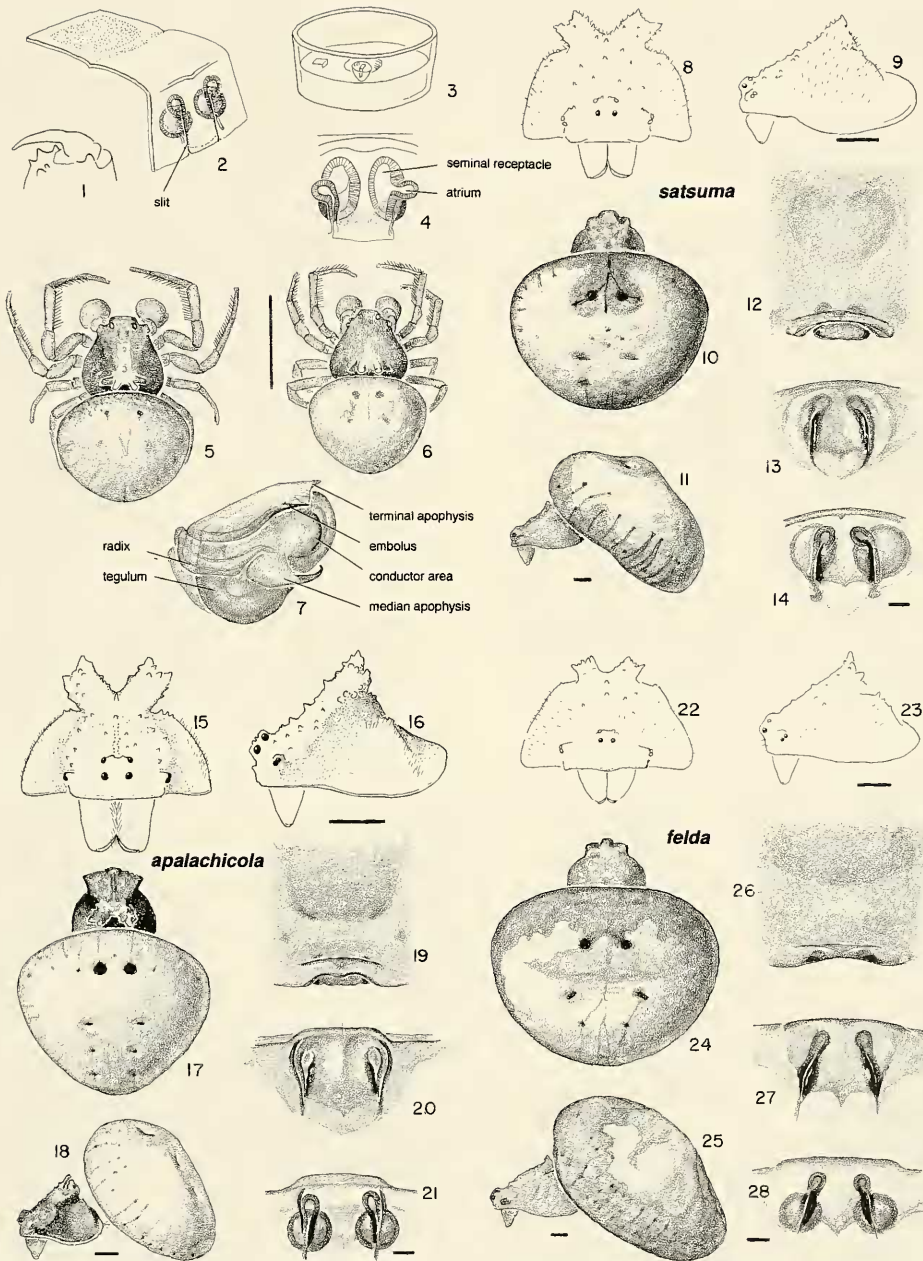
*Paratypes.* SOUTH CAROLINA *Anderson Co.:* Simpson Agric. Exp. Station, 16 Aug. 1974, 1 imm. (R. Paigler, CUAC). FLORIDA *Hamilton Co.:* nr. White Springs, Big Shoals State Forest, 25 Nov. 1991, 1♀ (M. K. Stowe 2116, FSCA). *Levy Co.:* Manatee Springs State Park, 10 Nov. 1992, 1♀ (M. K. Stowe 2114, MCZ).

***Mastophora felda* new species**  
**Figures 22–28; Map 2A**

*Holotype.* Female holotype from near Felda, Hendry Co., Florida, in orange grove, 8 March 1993 (D. Smith), in FSCA. The specific name is a noun in apposition after the type locality.

*Description.* Female holotype. Carapace dark orange-brown. Chelicerae dusky brown. Labium, endites dusky brown. Sternum brownish orange. Coxae orange-brown, lighter than sternum and legs. Distal leg articles dark orange-brown. Abdomen anterior, sides, and venter gray (Fig. 24), center and posterior whitish; venter





Figures 1-7. *Mastophora*. 1-4, female. 1, *M. bisaccata*, left tip of chelicera and fang from posterior. 2, epigynum, diagrammatical. 3, dish with paraffin to examine epigyna. 4, *M. diablo*, epigynum cleared, in posterior view, showing ducts. 5-7, male. 5, *M. gasteracanthoides*. 6, *M. bisaccata*. 7, *M. gasteracanthoides* left palpus without cymbium, mesal view.

Figures 8-14. *M. satsuma* new species, female. 8, 9, carapace and chelicerae. 8, frontal. 9, lateral. 10, 11, carapace and abdomen. 10, dorsal. 11, lateral. 12-14, epigynum. 12, ventral. 13, posterior. 14, posterior, cleared.

Figures 15-21. *M. apalachicola* new species, female. 15, 16, carapace and chelicerae. 15, frontal. 16, lateral. 17, 18, carapace and abdomen. 17, dorsal. 18, lateral. 19-21, epigynum. 19, ventral. 20, posterior. 21, posterior, cleared.

Figures 22-28. *M. felda* new species, female. 22, 23, carapace and chelicerae. 22, frontal. 23, lateral. 24, 25, carapace and abdomen. 24, dorsal. 25, lateral. 26-28, epigynum. 26, ventral. 27, posterior. 28, posterior, cleared.

Scale lines. 1.0 mm; genitalia, 0.1 mm.

with median white square. Carapace with few tubercles and with short, white setae (Figs. 22, 23). Median eyes on bulge, lateral eyes on bulges. Abdomen without humps (Fig. 24). Total length 12.3 mm. Carapace 5.3 mm long, 5.4 wide in thoracic region, 3.0 wide at lateral eyes. First femur 5.2 mm, patella and tibia 6.7, metatarsus 4.6, tarsus 1.2. Second patella and tibia 5.1 mm, third 2.7, fourth 4.8. Length of first patella and tibia 1.2 times width of carapace.

Males are not known.

*Variation.* The holotype has only seven eyes; it lacks the left posterior median eye.

*Diagnosis.* *Mastophora* is distinguished from *M. bisaccata* by the different coloration of the abdomen (Fig. 24), by the epigynum having only a thin rim in ventral view (Fig. 26), and by the small dorsal knobs in the depression on the posterior of the epigynum (Fig. 27). The atria bend toward each other (Fig. 28), but are farther apart than those of *M. bisaccata* (Fig. 57).

*Distribution.* South-central Florida (Map 2A).

*Specimens Examined.* No other specimens have been found.

### *Mastophora timuqua* new species

Figures 29–39, 445; Map 2A

*Holotype.* Female holotype from Devil's Millhopper State Park, Gainesville, Alachua Co., Florida, 19 Nov. 1983 (M. K. Stowe 107A), in MCZ. The specific name is a noun in apposition after an extinct, northern Florida Indian tribe.

*Description.* Female holotype. Carapace light brown, with sides and eye areas darker brown and white mark in center (Figs. 29, 30). Chelicerae, labium, endites brown. Sternum light brown. Coxae lighter than sternum, distal leg articles with dark brown rings. Abdomen gray with anterior darker (Fig. 31), venter with indistinct white square. Thorax with short white setae, a distinct narrow line around margin; lacking large tubercles on sides of thoracic region (Figs. 29, 30). Median eyes on a bulge, lateral eyes on bulges. Abdomen

without humps. Total length 8.5 mm. Carapace 3.5 mm long, 3.4 wide in thoracic region, 1.8 wide at lateral eyes. First femur 2.9 mm, patella and tibia 4.1, metatarsus 2.7, tarsus 0.8. Second patella and tibia 3.3 mm, third 1.8, fourth 2.7. Length of first patella and tibia 1.2 times width of carapace.

Male allotype. Carapace orange with white median patch. Sternum orange. Coxae, legs lighter orange. Abdomen dusky orange. Abdomen with two adjacent humps. Total length 1.6 mm. Carapace 0.88 mm long, 0.79 wide in thoracic region, 0.53 wide at lateral eyes. First femur 0.78 mm, patella and tibia 0.78, metatarsus 0.45, tarsus 0.28. Second patella and tibia 0.69 mm, third 0.40, fourth 0.55. Length of first patella and tibia same as width of carapace.

*Note.* Males were raised from egg sac of *M. timuqua*.

*Variation.* The illustrations were made from the female holotype and male allotype.

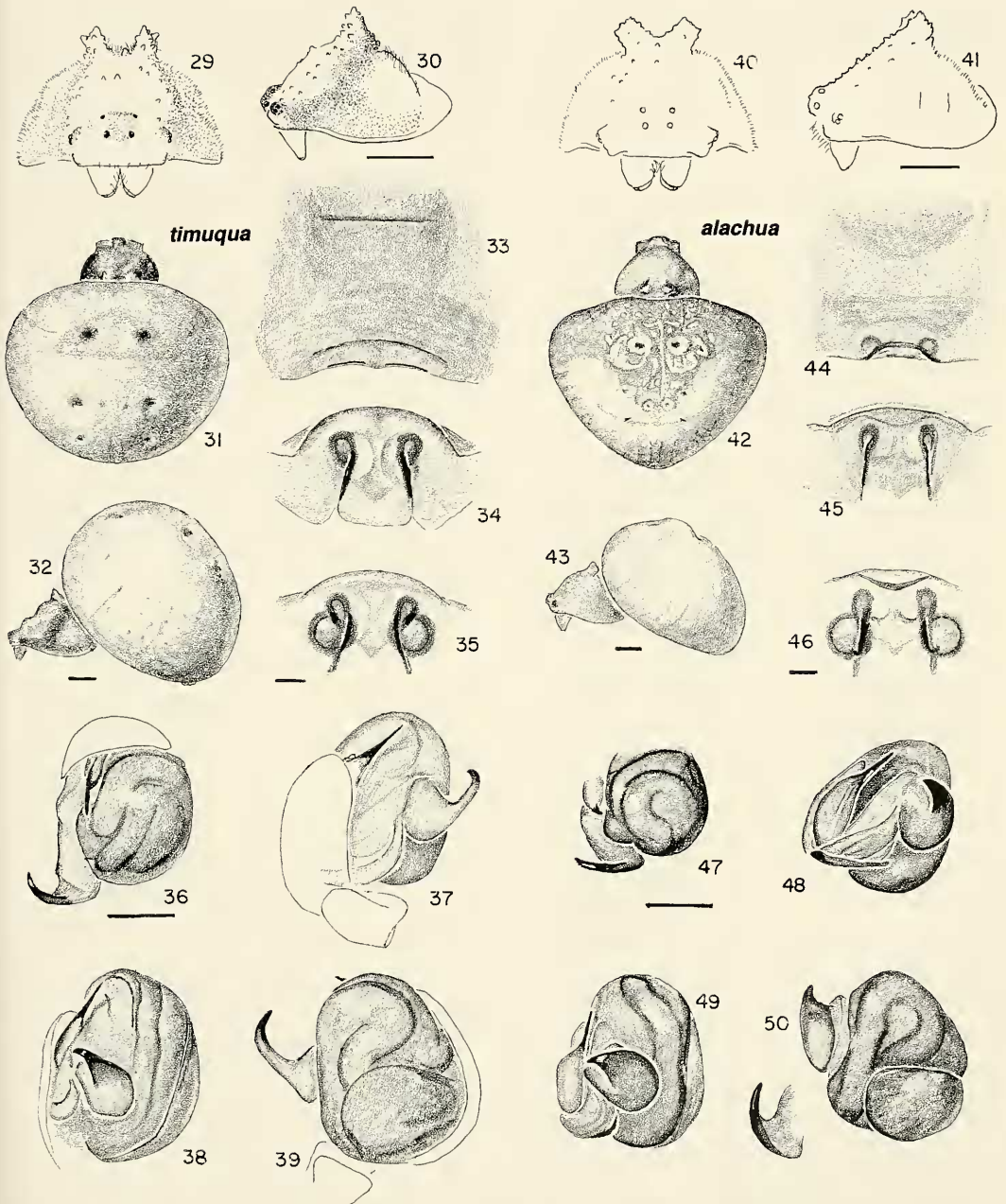
*Diagnosis.* *Mastophora timuqua* is distinguished from both *M. bisaccata* and *M. pisgah* by lacking dorsal abdominal pattern (Fig. 31), by having ringed legs, by having the posterior of the epigynum with atria separated, and by having a ridge in the midline (Fig. 34).

The male has a wide space enclosed by the median apophysis (Fig. 39) and differs from the male of *M. cornigera* by the proximal position of the radix (Fig. 37).

The egg sac is shown in Figure 445.

*Distribution.* North Carolina to northern Florida (Map 2A).

*Paratypes.* NORTH CAROLINA *Moore Co.:* reared from egg sac in spring 1941, 3♂ (J. Perry, M. K. Stowe 2113, MCZ). FLORIDA *Alachua Co.:* Devil's Millhopper State Park, reared spring 1992, ♂ allotype, 11 paratypes (M. K. Stowe 2101, MCZ, AMNH); spring 1992, raised 3♂ (M. K. Stowe 2106, FSCA). *Levy Co.:* Manatee Springs State Park, 5 Nov. 1987, 1♀ (M. K. Stowe 2111, AMNH). *Hillsborough Co.:* Pinecrest Alderman Ford County Park, 9 May 1988, egg sac (M. K. Stowe 21050, FSCA).



Figures 29–39. *Mastophora timuqua* new species. 29–35, female. 29, 30, carapace and chelicerae. 29, frontal. 30, lateral. 31, 32, carapace and abdomen. 31, dorsal. 32, lateral. 33–35, epigynum. 33, ventral. 34, posterior. 35, posterior, cleared. 36–39, male left palpus, stained. 36, apical. 37, mesal. 38, ventral. 39, ectal.

Figures 40–50. *M. alachua* new species. 40–46, female. 40, 41, carapace and chelicerae. 40, frontal. 41, lateral. 42, 43, carapace and abdomen. 42, dorsal. 43, lateral. 44–46, epigynum. 44, ventral. 45, posterior. 46, posterior, cleared. 47–51, male left palpus, stained. 47, apical. 48, mesal. 49, ventral. 50, ectal.

Scale lines. 1.0 mm; genitalia, 0.1 mm.



***Mastophora alachua* new species**

Figures 40–50; Map 2G

*Holotype.* Female holotype from Devil's Millhopper State Park, Gainesville, Alachua Co., Florida, 19 Nov. 1983 (Mark K. Stowe 107B), in MCZ. The species is named after the type locality.

*Description.* Female holotype. Carapace orange. Chelicerae, labium, endites orange. Sternum orange. Coxae and distal leg articles orange. Abdomen orange with a dorsal, anterior dusky area containing some bare patches, and a transverse gray line posteriorly (Fig. 42); venter with white square. Carapace granular rather than tubercular, sides of carapace with short white setae; no tubercles on lateral thoracic region (Fig. 41). Abdomen subtriangular, without humps (Fig. 43). Total length 8.0 mm. Carapace 3.4 mm long, 3.4 wide in thoracic region, 2.2 wide at lateral eyes. First femur 3.5 mm, patella and tibia 4.5, metatarsus 3.2, tarsus 1.0. Second patella and tibia 3.5 mm, third 1.8, fourth 2.9. Length of first patella and tibia 1.3 times width of carapace.

Male allotype. Carapace dusky orange with median white patch. Sternum, legs, abdomen dusky orange. Abdomen with pair of adjacent humps. Total length 1.6 mm. Carapace 0.78 mm long, 0.67 wide in thoracic region, 0.52 wide at lateral eyes. First femur 0.67 mm, patella and tibia 0.78, metatarsus 0.42, tarsus 0.11. Second patella and tibia 0.65 mm, third 0.38, fourth 0.54. Length of first patella and tibia 1.1 times width of carapace.

*Note.* The male was raised from an egg sac.

*Variation.* Total length of females 8.0–9.2 mm, males 1.6–1.7. The illustrations were made from female holotype, corrected with the paratypes. The male illustrated was the only one available, the allotype, whose palpus was expanded, and thus the median apophysis (Figs. 47–50) may not be at the same angle as in the contracted palpus.

*Diagnosis.* *Mastophora alachua* is distinguished by the abdomen, slightly triangu-

lar in shape and having markings like those of *M. bisaccata* (Fig. 42), and by the epigynum, in ventral view showing two dark areas, the atria, on the posterior margin, and a narrow double margin (Fig. 45), and on the posterior, parallel slits, slightly closer ventrally, and between, next to each other, two shallow U-shaped shadows (Fig. 45).

*Distribution.* Northern Florida (Map 2G).

*Paratypes.* FLORIDA *Alachua Co.*: Devil's Millhopper State Park, 21 Nov. 1983, 1 ♀ (M. K. Stowe 106, MCZ); no date, prob. 1984, allotype ♂ (M. K. Stowe 2102, MCZ); Gainesville, 1 Nov. 1990, 1 ♀ (M. K. Stowe 2115, FSCA).

***Mastophora bisaccata* (Emerton)**

Figures 51–62, 446; Map 2B

*Cyrtarachne bisaccata* Emerton, 1884: 325, pl. 34, fig. 11, ♀, pl. 38, fig. 12, egg sac. Female holotypes from beech tree, New Haven, Connecticut, in MCZ, examined.

*C. multilineata* Atkinson, 1888: 546. Two syntypes presumably from near Chapel Hill, North Carolina, lost. First synonymized by Banks (1910).

*Ordgarius bisaccata*:—Keyserling, 1892: 42, pl. 2, fig. 35, ♀. McCook, 1894: 198, pl. 12, figs. 2, 3, ♀.

*Glyptocranium bisaccatum*:—Bonnet, 1957: 1996.

*Ordgarius obesus* Banks, 1898: 250, pl. 15, fig. 9, ♀.

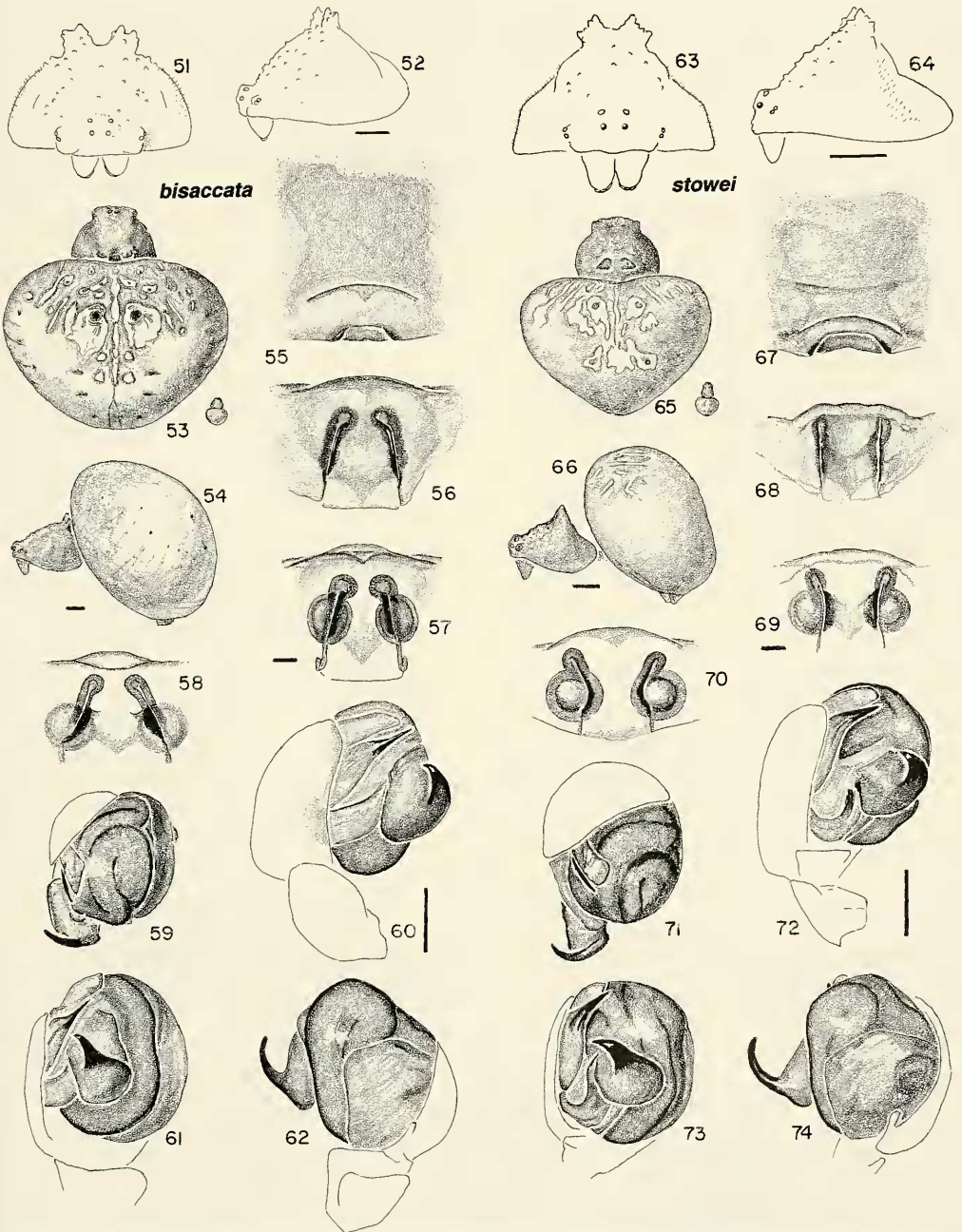
Two female syntypes from La Chuparosa [Chuparosa, San Luis Potosí], Mexico, in CAS, destroyed. NEW SYNONYMY.

*Mastophora bisaccata*:—Mello-Leitão, 1931: 71. Roewer, 1942: 900. Kaston, 1948: 232, figs. 737–740. Gertsch, 1955: 242, pls. 3–5, pl. 6, figs. 1, 4; text figs. 19–23, 35, 43, 44, ♀, ♂. Platnick, 1997: 513. Platnick, 2001.

*Note.* Atkinson did not tell how *Cyrtarachne multilineata* differs from *bisaccata*, although he mentioned the latter species. The large size, total length 11 and 13 mm, abdomen 13 and 15 mm wide, suggest he had *M. bisaccata*. The name was first synonymized by Banks (1910).

*Ordgarius obesus* differs from *bisaccata*, according to Banks, by being larger in size and having the cephalothorax truncate. The illustration shows the dorsal abdominal pattern of *M. bisaccata*. The size is within the range of *M. bisaccata* and the carapace, unlike most *Mastophora*, is truncate. There is no doubt that this was *M.*





Figures 51-62. *Mastophora bisaccata* (Emerton). 51-58, female. 51, 52, carapace and chelicerae. 51, frontal. 52, lateral. 53, 54, carapace and abdomen. 53, dorsal with male. 54, lateral. 55-58, epigynum. 55, ventral. 56, posterior. 57, 58, posterior, cleared. 57, (Virginia). 58, (Florida). 59-62, male left palpus, stained. 59, apical. 60, mesal. 61, ventral. 62, ectal.

Figures 63-74. *M. stowei* new species. 63-70, female. 63, 64, carapace and chelicerae. 63, frontal. 64, lateral. 65, 66, carapace and abdomen. 65, dorsal, with male. 66, lateral. 67-70, epigynum. 67, ventral. 68, posterior. 69, 70, posterior, cleared. 69, (Florida). 70, (North Carolina). 71-74, male left palpus, stained. 71, apical. 72, mesal. 73, ventral. 74, ectal.

Scale lines. 1.0 mm; genitalia, 0.1 mm.

*bisaccata*. The locality of this specimen is doubtful, because it came from the Marx collection (see Banks, 1898).

*Description.* Female from Rhode Island. Carapace orange-brown. Sternum dark orange-yellow. Legs orange yellow, first femur darker ventrally. Abdomen white, anterior dorsally gray with characteristic pattern (Fig. 53), venter with white square. Carapace with very small tubercles, and small eye projections (Figs. 51–53). Abdomen without humps (Fig. 53). Total length 14.2 mm. Carapace 5.2 mm long, 5.4 wide in thoracic region, 2.8 wide at lateral eyes. First femur 4.4 mm, patella and tibia 6.3, metatarsus 4.3, tarsus 1.2. Second patella and tibia 4.7 mm, third 2.7, fourth 4.6. Length of first patella and tibia 1.2 times width of carapace.

Male from Arkansas. Carapace orange-brown with white line in middle, branching posteriorly into tubercles (Fig. 6). Sternum white. Lateral eyes smaller than median. Legs colorless yellowish. Abdomen white. Abdomen with slight, indistinct tubercles (Fig. 6). Total length 1.8 mm. Carapace 0.88 mm long, 0.81 wide in thoracic region, 0.55 wide at lateral eyes. First femur 0.92 mm, patella and tibia 0.93, metatarsus 0.48, tarsus 0.27. Second patella and tibia 0.79 mm, third 0.47, fourth 0.59. Length of first patella and tibia 1.1 times width of carapace.

*Note.* Examined males include males raised from egg sacs by K. Yeargan and males collected in the same locality as females.

*Variation.* The holotype has the epigynal slits farther apart than in the specimen illustrated. Total length of females 9.0–15.3 mm. Males may have humps on the abdomen. The illustrations were made from the female holotype and males from Arkansas and Ohio. An egg sac collected with

female at Bushnell, Florida, lacked flaps and was smooth.

*Diagnosis.* The female of *M. bisaccata* is distinguished from the similar *M. alachua*, *M. stowe*i, and *M. yeargani* by being larger, and having the atria approaching each other in posterior view of the epigynum (Figs. 56–58).

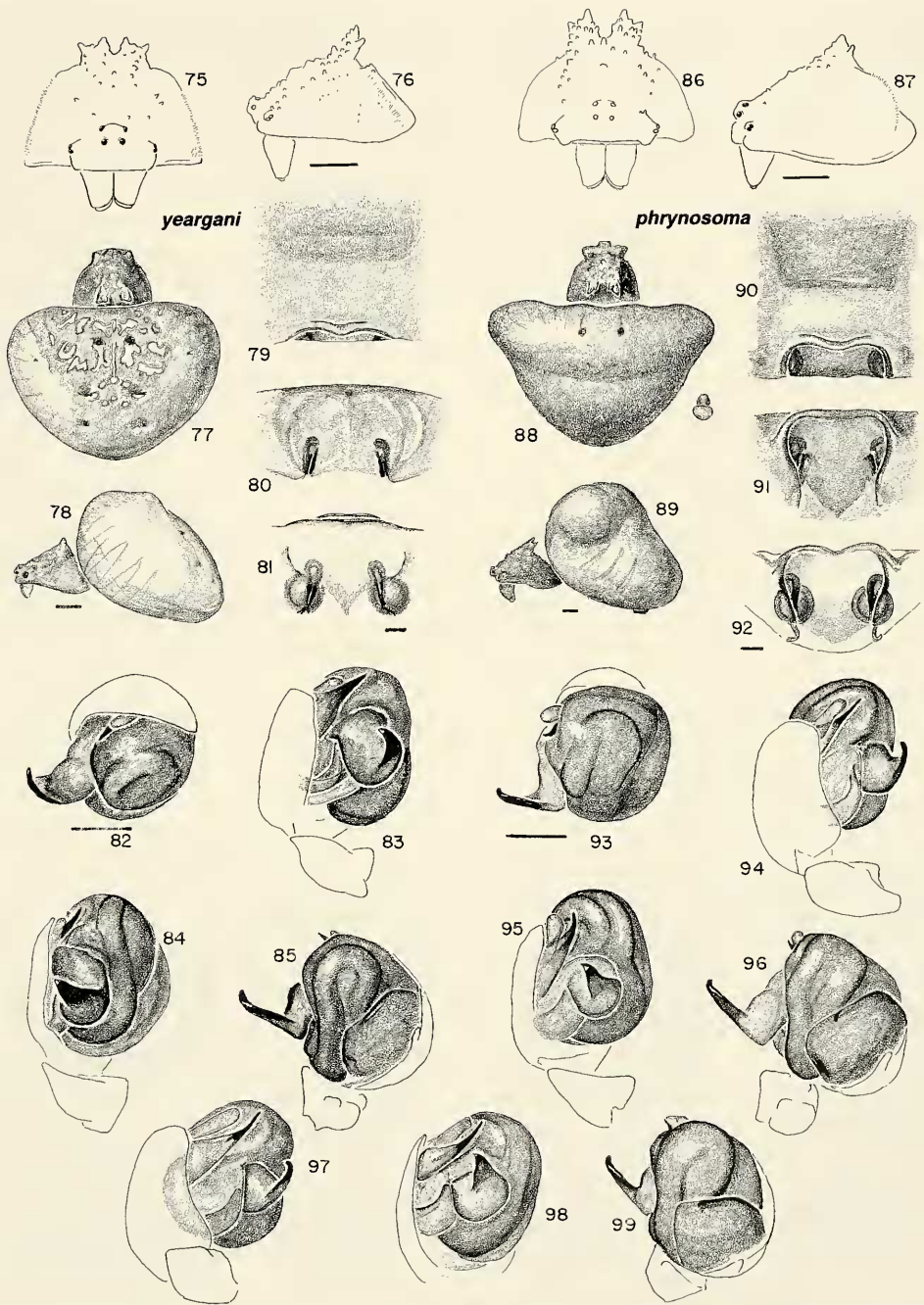
The male has a narrow space encircled by the median apophysis in ectal view (Fig. 62), and the median apophysis has a longer base (Fig. 60) than in *M. hutchinsoni*.

The egg sac has a heavier stalk than in other *Mastophora* species (Fig. 446).

*Natural History.* *Mastophora bisaccata* has been collected from bittersweet in Connecticut, field of cemetery in Illinois, and on dogwood in Florida. Females rest under leaves, and sometimes neighboring leaves are stitched together; the females may look like leaf galls in Florida (M. Stowe, personal correspondence); in North Carolina they may resemble tree snails (Atkinson, 1888).

*Distribution.* Eastern United States (Map 2B).

*Specimens Examined.* CONNECTICUT *Litchfield Co.*: Kent, on bittersweet, Sept. 1937, 1♀ (AMNH). NEW YORK *Nassau Co.*: Long Island: Sea Cliff, 1♂ (MCZ). NEW JERSEY *Elizabeth Co.*: Roselle Park, 25 Sep. 1910, 1♀ (AMNH). *Middlesex Co.*: New Brunswick, July 1930, 1♀ (AMNH). PENNSYLVANIA *Westmoreland Co.*: 4.8 km S Rector, 13 Sep. 1966, 1♀ (B. Vogel, DMNS). OHIO *Jackson Co.*: Oak Hill, 1♀ (R. A. Reller, OSU). *Logan Co.*: Cantwell Cliffs, 8 Sep. 1935, 1♀ (OSU). *Butler Co.*: Bachelor Woods, Oxford, 11 July 1998, 1♂ (D. M. Golden, OSU). DISTRICT OF COLUMBIA Washington, Sept., 1♂ (Fox, CUC, AMNH); summer 1935, 1♀ (H. E. Ewing, USNM). VIRGINIA Falls Church, 1♀, 1♂ (MCZ). *Powhatan Co.*: Powhatan, Sep. 1984, 1♀ (A. Moreton, MCZ); 1985, 1♀ (A. Moreton, MKS). KENTUCKY *Jessamine Co.*: imm., 7♂ raised spring 1995 (K. V. Yeargan, KVV). SOUTH CAROLINA *Oconee Co.*: Clemson College, 1♀ (MCZ). *Lexington Co.*: Batesburg, 1♀ (MCZ). GEORGIA *Fulton Co.*: Atlanta, 2 Aug. 1937, 1♀ (F.



Figures 86-99. *M. phrynosoma* Gertsch. 86-92, female. 86, 87, carapace and chelicerae. 86, frontal. 87, lateral. 88, 89, carapace and abdomen. 88, dorsal, with male. 89, lateral. 90-92, epigynum. 90, ventral. 91, posterior. 92, posterior, cleared. 93-99, male left palpus, stained. 93-96, (Kentucky). 97-99, (Florida). 93, apical. 94, 97, mesal. 95, 98, ventral. 96, 99, ectal.

Scale lines. 1.0 mm; genitalia, 0.1 mm.



W. Fattig, AMNH). FLORIDA *Alachua Co.*: Devil's Millhopper State Park, July, Aug. 1978–1981, 5♀ (M. K. Stowe, MKS); June, July 1981, 7♀ (M. K. Stowe, MKS); 19 Nov. 1983, 1♀; Gainesville, 26 July 1980, penult. (C. Hieber, MCZ); High Springs, Oct. 1935, 1♀ (H. H. Simpson, USNM). *Indian River Co.*: Sebastian, Apr. 1944, 1♀ (G. Nelson, MCZ). *Lake Co.*: Umatilla, Sep. 1954, 1♀ (M. W. Tyler, AMNH). *Sumter Co.*: Bushnell, 24 Oct. 1979, 1♀ (W. Edwards, FSCA). ILLINOIS *Franklin Co.*: Zeigler, 10 May 1928, 1♀ (J. K. Carlovic, MCZ). *Jackson Co.*: Little Grand Canyon, S. Murphysboro, 5 Sep. 1971, 1♂ (N. Magnuson, JAB). *Williamson Co.*: Canterville, field of cemetery, 14 Oct. 1978, 1♀ (R. Reith, JAB). MISSOURI *St. Louis Co.*: 17 Feb. 1940, 1♂ paratypes of *M. archeri* (W. M. Gordon, AMNH). ARKANSAS *Carroll Co.*: Berryville, July 1942, 1♂ (C. Wilton). MISSISSIPPI *Harrison Co.*: Gulfport, 1♀ (AMNH).

### *Mastophora stowei* new species

Plate 1; Figures 63–74, 447; Map 2C

*Holotype.* Female holotype from American Entomological Institute, Gainesville, Alachua Co., Florida, 29°36.0'N, 82°22.0'W, 7 Dec. 1987 (M. Stowe 07001), in MCZ. The species is named after the collector, Mark Stowe, who has contributed much to our knowledge of *Mastophora*.

*Description.* Female holotype. Carapace orange-brown, dusky in eye region (Fig. 65). Chelicerae light orange, labium, endites dusky orange. Sternum orange. Legs light orange, dusky dorsally. Abdomen dorsum whitish with gray pattern anteriorly, having distinct white spots and streaks (Fig. 65); venter with white square. Carapace without indistinct tubercles; horns almost rectangular in anterior view (Figs. 63, 64). Abdomen without humps and slightly pointed posteriorly (Fig. 65). Total length 8.0 mm. Carapace 3.5 mm long, 3.4 wide in thoracic region, 2.1 wide at lateral eyes. First femur 3.4 mm, patella and tibia 4.5, metatarsus 2.8, tarsus 1.0. Second patella and tibia 3.4 mm, third 2.0, fourth 3.2. Length of first patella and tibia 1.3 times width of carapace.

Male allotype. Carapace gray-orange

with a white median patch. Sternum orange. Legs orange, dusky dorsally. Abdomen dusky orange, with humps. Total length 1.7 mm. Carapace 0.80 mm long, 0.68 wide in thoracic region, 0.48 wide at lateral eyes. First femur 0.67 mm, patella and tibia 0.78, metatarsus 0.41, tarsus 0.29. Second patella and tibia 0.65 mm, third 0.39, fourth 0.53. Length of first patella and tibia 1.1 times width of carapace.

*Note.* Males were raised from the egg sac of the holotype.

*Variation.* Total length of females 6.3–10.5 mm. Males may lack humps. The illustrations were made from the female holotype, except Figure 70 from a North Carolina specimen, and the male from the allotype.

*Diagnosis.* *Mastophora stowei* is distinguished from *M. bisaccata* by being smaller in size and having the atria of the epigynum ventrally departing from each other (Figs. 68–70). The egg sac is shown in Figure 447.

*Natural History.* Females have been collected from trees along farm fences in Kentucky, and on a carpet of silk on a maple leaf in Virginia.

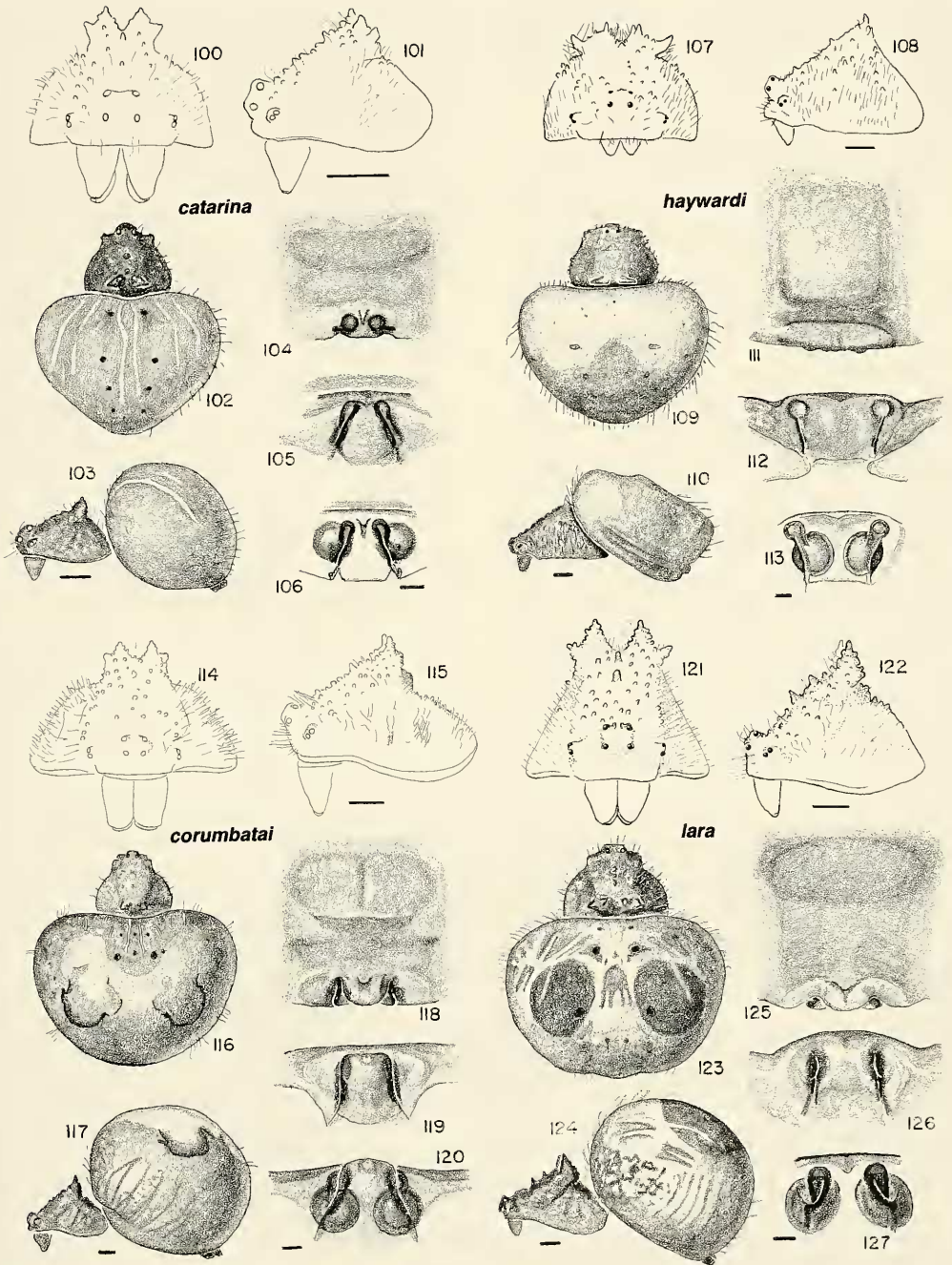
*Distribution.* Widespread in the eastern United States (Map 2C).

*Paratypes.* CONNECTICUT *Hartford Co.*: Rainbow nr. Windsor, 9 Aug. 1939, 1♀ (A. de Caprio, USNM). OHIO *Logan Co.*: Old Man's Cave, 12 Sep. 1924, 1♂ (OSU). VIRGINIA *Arlington Co.*: Arlington, 7 Sept. 1953, 1♀ (K. V. Krombein, AMNH). ILLINOIS *Pope Co.*: Dixon Spring State Park, 7 Sept. 1974, 1♀ (J. A. Beatty, JAB). KENTUCKY *Fayette Co.*: Lexington, Oct. 1997, 1♀, egg sac (K. V. Yeargan, KVV); 6 Aug. 1998, 14♂ (K. Yeargan, KVV); Cold Stream farm fence, 16 Oct. 1998, 3♀ (K. Yeargan, KVV). *Jessamine Co.*: 3 Aug. 1995, 7♂ (K. Yeargan, KVV). NORTH CAROLINA *Haywood Co.*: Canton, 1♀ (Holden, MCZ). GEORGIA 1♀ (MNH 210). FLORIDA *Alachua Co.*: Gainesville, male allotype and 1 penultimate paratype from egg sac of holotype.

Figures 100–106. *Mastophora catarina* new species, female. 100, 101, carapace and chelicerae. 100, frontal. 101, lateral. 102, 103, carapace and abdomen. 102, dorsal. 103, lateral. 104–106, epigynum. 104, ventral. 105, posterior. 106, posterior, cleared.

Figures 107–113. *M. haywardi* Birabén, female. 107, 108, carapace and chelicerae. 107, frontal. 108, lateral. 109, 110, carapace and abdomen. 109, dorsal. 110, lateral. 111–113, epigynum. 111, ventral. 112, posterior. 113, posterior, cleared.





Figures 114–120. *M. corumbatai* new species, female. 114, 115, carapace and chelicerae. 114, frontal. 115, lateral. 116, 117, carapace and abdomen. 116, dorsal. 117, lateral. 118–120, epigynum. 118, ventral. 119, posterior. 120, posterior, cleared.

Figures 121–127. *M. lara* new species, female. 121, 122, carapace and chelicerae. 121, frontal. 122, lateral. 123, 124, carapace and abdomen. 123, dorsal. 124, lateral. 125–127, epigynum. 125, ventral. 126, posterior. 127, posterior, cleared.

Scale lines. 1.0 mm; genitalia, 0.1 mm.

hatched 27 Apr. to 15 May 1988, preserved 18 July 1988 (*M. Stowe* 20181, 20183, MCZ, AMNH, FSCA). TEXAS *Harrison Co.*: Marshall, 5 July 1991, 1 ♀ (*S. G. Wellso, JK*).

*Mastophora yeargani* new species

Plate 1; Figures 75–85; 448; Map 2A

*Holotype.* Female holotype from Coldstream Farm fence, Lexington, Kentucky, 26 Oct. 1998, male allotype and 11 male and 4 female paratypes emerged 24 May 1999, preserved in fall (*K. V. Yeargan*), in MCZ. The species has been named after the collector, who has contributed much to our knowledge of *Mastophora* ecology.

*Description.* Female holotype. Carapace light brown. Chelicerae, labium, endites yellow. Sternum yellow underlain by white pigment granules. Coxae and distal leg articles yellow. Abdomen anterior of dorsum gray with white marks anteriorly (Fig. 77), posterior white, venter whitish with white square. Carapace shiny. Abdomen with pair of very slight dorsal swellings. Total length 10.0 mm. Carapace 4.2 mm long, 4.2 wide in thoracic region, 2.3 wide at lateral eyes. First femur 3.9 mm, patella and tibia 5.4, metatarsus 3.8, tarsus 1.2. Second patella and tibia 4.0 mm, third 2.4, fourth 3.7. Length of first patella and tibia 1.3 times width of carapace.

Male allotype. Carapace brown with white triangle in center. Chelicerae, labium, endites orange. Sternum orange. Coxae and distal leg articles orange. Abdomen whitish with pair of humps. Total length 1.7 mm. Carapace 0.78 mm long, 0.78 wide in thoracic region, 0.52 wide at lateral eyes. First femur 0.87 mm, patella and tibia 0.88, metatarsus 0.52, tarsus 0.34. Second patella and tibia 0.75 mm, third 0.39, fourth 0.60. Length of first patella and tibia 1.1 times width of carapace.

*Note.* Males have been raised from egg sac of female *M. yeargani* (by *K. Yeargan*).

*Variation.* Total length of females 10.0–11.5 mm. The illustrations were made from the holotype and allotype.

*Diagnosis.* *Mastophora yeargani* is distinguished from *M. bisaccata* and *M. stoweii*, which have similar abdominal markings, by the short slits of the epigynum, which are almost parallel and their length distant from the ventral margin (Figs. 80, 81). The female also lacks duskiness on the dorsum of the femora and gray pigment on the clypeus, both of which are present in *M. stoweii*.

The male differs from *M. bisaccata* (Fig. 62) by having a longer median apophysis (Fig. 85) and from *M. cornigera* (Figs. 177, 179) by having only a short terminal apophysis in the palpus (Figs. 82, 83), and by having the median apophysis of a different shape, and the embolus wider (Figs. 83, 84).

*Distribution.* From New York to Kentucky (Fig. 448).

*Paratypes.* NEW YORK *nr.* New York City, on *Amalanchier* sp., 1 ♀ (AMNH). KENTUCKY *Mercer Co.*: Feb. 1995 egg sacs, 29 Sept. 1995, 7 imm., 4 ♂ (*K. V. Yeargan, KVV*). *Garrard Co.*: Feb. 1995, egg sacs, Sept. 1995, 6 imm., 16 ♂ (*K. V. Yeargan, KVV*).

*Mastophora phrynosoma* Gertsch

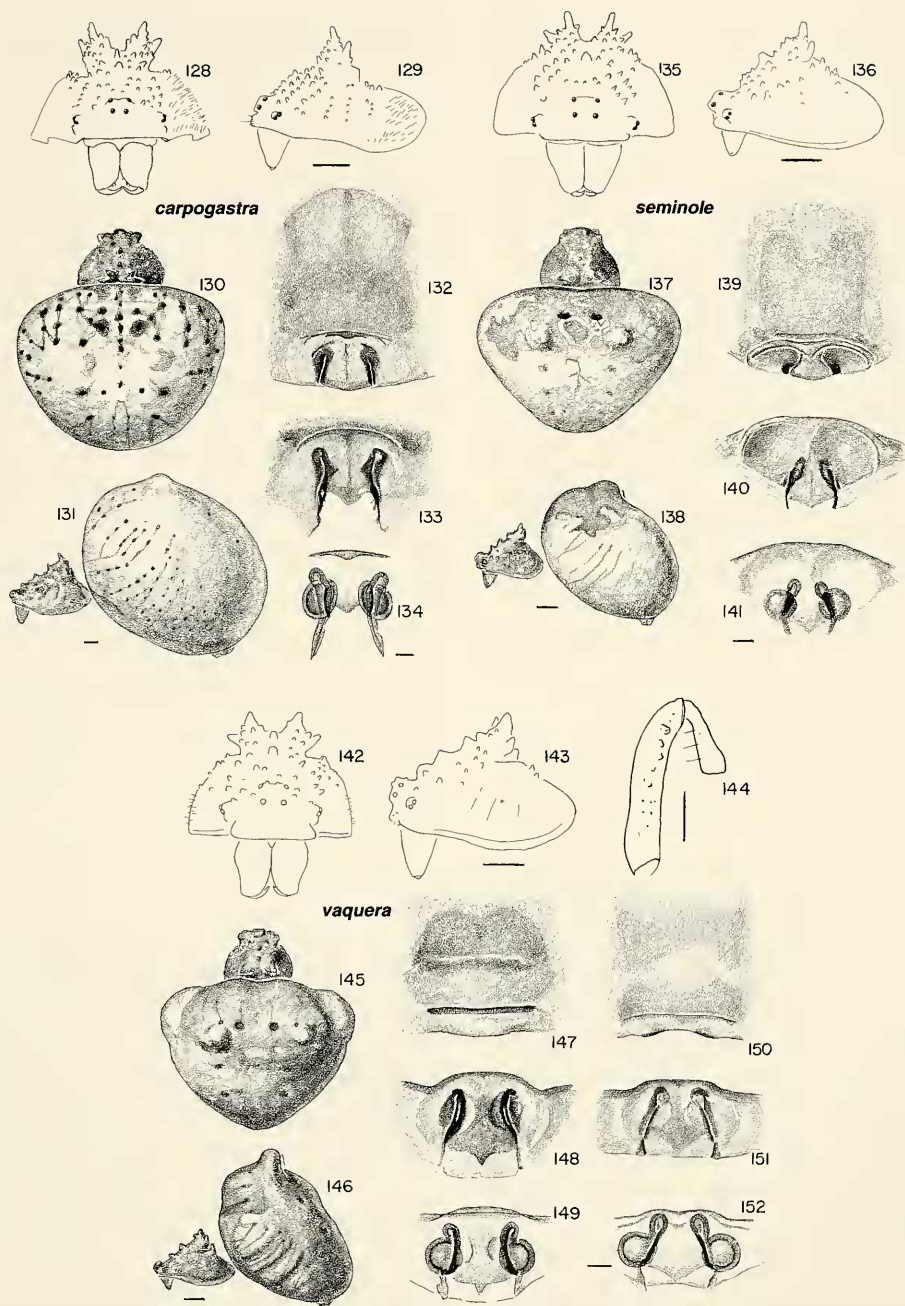
Figures 86–99, 449, 450; Map 2D

*Mastophora phrynosoma* Gertsch, 1955: 245; pl. 6, fig. 5, text figs. 24–27, 31, ♀. Female holotype from Burlington, North Carolina, in AMNH, examined. Brignoli, 1983: 273. Platnick, 2001.

*Description.* Female holotype. Carapace orange-brown. Sternum orange-brown. Legs orange-brown, indistinctly ringed. Abdomen anteriorly gray, posteriorly white (Fig. 88), venter with white square. Carapace with tubercles very small (Figs. 86, 87). Median eyes on bulge, lateral eyes on bulges. Abdomen subtriangular with a

Figures 128–134 *Mastophora carpogastra* Mello-Leitão, female. 128, 129, carapace and chelicerae. 128, frontal. 129, lateral. 130, 131, carapace and abdomen. 130, dorsal. 131, lateral. 132–134, epigynum. 132, ventral. 133, posterior. 134, posterior, cleared.

Figures 135–141. *M. seminole* new species, female. 135, 136, carapace and chelicerae. 135, frontal. 136, lateral. 137, 138, carapace and abdomen. 137, dorsal. 138, lateral. 139–141, epigynum. 139, ventral. 140, posterior. 141, posterior, cleared.



Figures 142-152. *M. vaquera* Gertsch, female. 142, 143, carapace and chelicerae. 142, frontal. 143, lateral. 144, left first femur and patella, mesal. 145, 146, carapace and abdomen. 145, dorsal. 146, lateral. 147-152, epigynum. 147, 150 ventral. 148, 151, posterior. 149, 152, posterior, cleared. 147-149, (holotype from Matanzas). 150-152, (Santiago).

Scale lines. 1.0 mm; genitalia, 0.1 mm.



swelling on each anterior lateral side and indistinct sclerotized discs (Fig. 88). Total length 12.3 mm. Carapace 4.6 mm long, 4.4 wide in thoracic region, 2.7 wide at lateral eyes. First femur 4.6 mm, patella and tibia 6.5, metatarsus 4.7, tarsus 1.3. Second patella and tibia 4.5 mm, third 2.4, fourth 4.1. Length of first patella and tibia 1.5 times width of carapace.

Male from Kentucky. Carapace orange-brown, median triangle enclosing horns and two tubercles lighter. Sternum orange. Legs orange-brown. Abdomen both sides orange-white. Carapace slightly rugose, with two median tubercles and four posterior horns. Abdomen with small dorsal humps. Total length 1.8 mm. Carapace 0.81 mm long, 0.80 wide in thoracic region, 0.55 wide at lateral eyes. First femur 0.91 mm, patella and tibia 0.93, metatarsus 0.46, tarsus 0.31. Second patella and tibia 0.78 mm, third 0.45, fourth 0.60. Length of first patella and tibia 1.2 times width of carapace.

*Note.* Males have been raised by M. K. Stowe and K. V. Yeargan from egg sacs that were determined to be from *M. phrynosoma*.

*Variation.* Total length of females 8.3–12.3 mm, males 1.5–1.7. The lateral swellings of a specimen from Falls Church are less distinct. The carapace of a female from Missouri is blackish brown, sternum and coxae black, legs ringed, and abdominal venter black. The venter of several individuals is black. The illustrations were made from the female holotype and from the reared male.

*Diagnosis.* *Mastophora phrynosoma* is distinguished by the subtriangular shape of the abdomen, the small, dorsal sclerotized discs (Fig. 88), and by the posterior of the epigynum having a lip surrounding the slits on three sides (Figs. 90–92).

The palpus of the male has the space enclosed by the median apophysis wider than long and the prong straight (Figs. 96, 99), and has the base of the median apophysis almost as wide as long (Figs. 94, 98). It differs from that of *M. archeri* by

having a longer terminal apophysis (Figs. 93, 94), and wider radix (Figs. 95, 98).

The egg sac is distinct, having longer flaps than in other species (Figs. 449, 450).

*Natural History.* A female was collected on elm bush, 1.5 m high, in Texas; in Missouri, a female was collected hanging on a silk strand on canebrake (*Arundinaria gigantea*) at night at 0200 h. Males were collected crawling on a table in the laboratory, and in low branches of hawthorn in Ohio. Immature spiderlings attract psychodid flies (*Psychoda phalaenoides*) (Yeargan and Quate, 1996). The female always rests on the upper leaf surfaces, which often accumulate a silk pad that may be visible under the spider. The spiders look like bird droppings in Florida (M. Stowe, personal communication). The moths captured in Kentucky and Florida, observed by M. K. Stowe and K. V. Yeargan, were reported by Yeargan (1994).

An egg sac raised by K. V. Yeargan produced only male spiderlings. A suggestion has been made that the sex chromosome system might be different from that of other spiders (G. Oxford, in letter). Perhaps this skewed sex ratio was due to the mortality of females.

*Distribution.* Eastern United States (Map 2D).

*Specimens Examined.* CONNECTICUT *New Haven Co.:* Mount Carmel, 4 Sept. 1946, 1♀ (K. M. Somerman, INHS 4748). *Meriden Co.:* South Meriden, Oct. 1945, 1♀ (H. L. Johnson, USNM). NEW YORK *New York City,* on *Prunus*, 1♀ (AMNH). OHIO *Cuyahoga Co.:* Sagmore Picnic, Sagmore Hills, Buckeye Trail area, 16 Sept. 1999, 1♀ (K. Bradley, OSU). MARYLAND *Anne Arundel Co.:* Annapolis, 21 Sep. 1941, 1♀ (M. H. Muma, AMNH). *Howard Co.:* Colombia, Snowden River Parkway, 26 Sep. 1994, 1♀ (M. Harden, USNM). *Montgomery Co.:* Cabin John, 10 Nov. 1943, egg sacs (I. N. Hoffman, USNM). VIRGINIA *Falls Church,* 2♀ (N. Banks, MCZ). KENTUCKY *Fayette Co.:* Lexington, Raven Run, 1989, 1♀ (K. V. Yeargan, KVV); 17 May 1999, egg sacs with only ♂♂ (K. V. Yeargan, KVV, MCZ). GEORGIA *Fulton Co.:* Atlanta, 21 Aug. 1944, 1♀ (F. W. Fattig, AMNH). FLORIDA *Alachua Co.:* Gainesville, Apr. 1988, 1♂ (M. K. Stowe, MKS); Devil's Millhopper State Park, 15 July 1980, 1♀ (M. K. Stowe, MKS); spring 1992, 2♂ (M. K. Stowe, MKS); spring 1994, 8♂ (M. K. Stowe, MKS). ALABAMA



Monroe Co.: Randon's Creek, 19 Oct. 1941, 1 ♀ (A. F. Archer, AMNH). INDIANA 1 ♀ (A. Petrunkevitch, NHMW). ILLINOIS Jackson Co.: Carbondale, in woods at night, 4 Aug. 1967, 1 ♀ (J. M. Nelson, AMNH). MISSOURI Wayne Co.: Markham Spring, Mark Twain National Forest, 14 Oct. 2000, 1 ♀ (E. L. Quinter, AMNH). St. Louis Co.: 17 July 1940, 1 ♂ paratype of *M. archeri* (W. M. Gordon, AMNH). TEXAS Walker Co.: Huntsville State Park, on elm bush, 27 Sep. 1987, 1 ♀ (W. R. Martin, TAMU).

***Mastophora catarina* new species**  
**Figures 100–106; Map 3C**

*Holotype.* Female from Pinhal, Est. Santa Catarina, Brazil, Dec. 1948 to Jan. 1949 (A. Maller), in AMNH. The specific name is a noun in apposition after the locality.

*Description.* Female holotype. Carapace dark orange-brown (Fig. 102). Sternum dark orange. Chelicerae dark in front, orange on sides. Endites, labium, sternum, coxae orange; coxae lighter than sternum. Legs dark brown. Abdomen gray-brown, dorsally with three pairs of white longitudinal lines (Fig. 102); venter with a white square. Eyes distinct. Lateral eyes 0.8 diameter of median eyes. Abdomen without humps (Fig. 102). Carapace, legs, and abdomen with some long white hair. Total length 7.2 mm. Carapace 3.3 mm long, 3.2 wide in thoracic region, 1.8 wide at lateral eyes. First femur 3.5 mm, patella and tibia 4.4, metatarsus 3.0, tarsus 1.0. Second patella and tibia 3.3 mm, third 1.7, fourth 2.7. Length of first patella and tibia 1.4 times width of carapace.

Males are not known.

*Diagnosis.* *Mastophora catarina* is separated from others by the abdomen lacking humps and having six white lines (Fig. 102), by the epigynum having the atria approaching each other (Figs. 105, 106), and by the paired notches at the edge of the epigynum (Fig. 106).

*Distribution.* Santa Catarina State, Brazil (Map 3C).

*Specimens Examined.* No other specimens have been found.

***Mastophora haywardi* Birabén**  
**Figures 107–113; Map 3C**

*Mastophora haywardi* Birabén, 1946: 327, figs. 1–3, ♀. Female holotype, from Tucumán, Argentina, in

MLP, examined. Brignoli, 1983: 274. Platnick, 2001.

*Description.* Female holotype in poor condition. Carapace brown, with a lighter square area in thoracic region (Fig. 109), and with long white setae. Sternum lighter. Legs brown. Abdomen brown (the holotype has an injury, a large transverse gash anteriorly), posterior and sides darker gray than anterior (Fig. 109), with some long white setae and indistinct humps visible only from side; venter light. Total length 11.0 mm. Carapace 5.5 mm long, 4.7 wide in thoracic region, 3.1 wide in cephalic region. First femur 4.7 mm, patella and tibia 7.6, metatarsus 5.8, tarsus 1.5. Second patella and tibia 5.2 mm, third 3.0 (from Birabén, 1946), fourth 4.5. Length of first patella and tibia 1.3 times width of carapace.

Males are not known.

*Diagnosis.* This species is separated from others by being the only setose species without distinct humps (Fig. 109), and by having the slits and the atria in the posterior view of the epigynum ventrally separated (Figs. 112, 113).

*Distribution.* Known only from Tucumán, Argentina (Map 3C).

*Specimens Examined.* No other specimens have been collected.

***Mastophora corumbatai* new species**  
**Figures 114–120; Map 3C**

*Holotype.* Female holotype from Corumbataí, Est. São Paulo [40 km N Rio Claro], Brazil, 15 July 1935 (Sylvio Bariaú), in IBSP no. 1203A. The specific name is a noun in apposition after the locality.

*Description.* Female holotype. Carapace red-brown with white rim (Fig. 116). Chelicerae, labium, endites, sternum, coxae, proximal ends of femora orange. Distal leg articles brown. Abdomen light brown, with colorless butterfly-shaped light area dorsally and pair of large dark, open rings (Fig. 116); venter light brown with white square. Carapace with various sized, drop-let-shaped tubercles, sides with long white setae, some curled (Figs. 114, 115). Abdomen without humps, with scattered

long, white setae (Fig. 116). Total length 14.0 mm. Carapace 5.6 mm long, 5.5 wide in thoracic region, 3.0 wide at lateral eyes. First femur 5.5 mm, patella and tibia 7.5, metatarsus 4.9, tarsus 1.6. Second patella and tibia 5.3 mm, third 3.2, fourth 4.8. Length of first patella and tibia 1.4 times width of carapace.

Males are not known.

*Diagnosis.* *Mastophora corumbatai* is distinguished by carapace tubercles that look like oil droplets (Figs. 114, 115), by lack of humps and distinctive color pattern on abdomen (Fig. 116), and by the epigynum with its posterior median plate projecting, almost scapelike in ventral view (Figs. 118–120).

*Distribution.* Santa Catarina State, Brazil (Map 3C).

*Specimens Examined.* No other specimens have been collected.

### *Mastophora lara* new species

Figures 121–127; Map 3A

*Holotype.* Female holotype from Hato Arriba, 1,400 m, Lara, Venezuela, May 1970 (J. M. Osorio), in FSCA. The specific name is a noun in apposition after the locality.

*Note.* The type locality Hato Arriba is probably at or near Quebrada Arriba, 1,600 m, 10°14'N, 70°32'W, close to the border with Falcón, Zulia, and Lara, 52 km W Carora.

*Description.* Female holotype. Carapace dark brown, lighter behind, in center and in area on sides. Chelicerae, labium, endites orange-brown. Sternum orange-brown. Coxae and distal leg articles orange-brown, distally darker. Abdomen gray with anterior dorsal pattern of spots and two large brown discs, each dissected by a lateral light line (Fig. 123); venter light brown with white longitudinal rectangle. Carapace with tubercles and scattered long white setae (Figs. 121, 122). Legs with some long white setae. Abdomen without humps, blunt behind, each side slightly swollen, long white setae on each side anteriorly (Fig. 123). Total length 11.5 mm. Carapace 5.0 mm long, 5.0 wide in

thoracic region, 2.7 wide at lateral eyes. First femur 5.2 mm, patella and tibia 6.7, metatarsus 4.5, tarsus 1.3. Second patella and tibia 5.1 mm, third 3.0, fourth 4.5. Length of first patella and tibia 1.3 times width of carapace.

Males are not known.

*Diagnosis.* *Mastophora lara* differs by the high almost conical carapace (Figs. 121, 122), by the pattern on the abdomen (Fig. 123), and by the posterior of the epigynum having a pair of depressions (Figs. 125–127).

*Distribution.* This species is known only from the type locality in west-central Venezuela (Map 3A).

*Specimens Examined.* No other specimens have been collected.

### *Mastophora carpogastra* Mello-Leitão

Figures 128–134, 451; Map 3B

*Mastophora carpogastra* Mello-Leitão, 1925: 460. Two female syntypes from Rio de Janeiro, Brazil, in MNRJ, 672, examined. Mello-Leitão, 1931: 72, fig. 3, 15, ♀.

*Glyptocranium fagoides* Vellard, 1926: 327, figs., ♀, egg sac. Female holotype from Butantan, São Paulo, Brazil, in IBSP, lost. First synonymized with *carpogastra* by Mello-Leitão (1931).

*Mastophora carpogastra*:—Roewer, 1942: 900.

*Glyptocranium carpogastrum*:—Bonnet, 1957: 1996.

*Mastophora carpogaster*:—Platnick, 1993: 447. Platnick, 2001.

*Note.* Roewer (1942) changed the name *carpogastra* and listed *fagoides* as a synonym of *M. corpulenta* Banks. The name change *carpogaster* of Platnick (1993, 2001) is not needed because previous revisors (Mello-Leitão, 1931; Gertsch, 1955) kept the original spelling.

*Description.* Female from São Paulo. Carapace reddish brown. Chelicerae, labium, endites brown. Sternum light brown. Legs brown. Abdomen white with symmetrical brownish black patches and less distinct lines dorsally (Fig. 130); venter with a median white square containing eight black spots, sides white with black spots. Carapace glossy above, sides with long white setae, some setae on clypeus (Fig. 129). Legs with long white setae. Ab-

domen oval with scattered setae and barely visible pair of dorsal tubercles (Fig. 131). Total length 16.5 mm. Carapace 6.4 mm long, 6.0 wide in thoracic region, 3.3 wide behind posterior lateral eyes. First femur 5.3 mm, patella and tibia 7.6, metatarsus 5.7, tarsus 1.6. Second patella and tibia 5.5 mm, third 3.3, fourth 5.2. Length of first patella and tibia 1.3 times width of carapace.

Males are not known.

*Variation.* Mello-Leitão (1925) described the species as orange to raspberry-red when alive. Total length of females 11.2–18.0 mm. The female holotype of *M. carpogastra* is 20 mm total length. The illustrations were made of specimens from São Paulo.

*Diagnosis.* The spots and black lines and lack of humps of the abdomen (Fig. 130) distinguish the species from all others. In the cleared epigynum, the atria separate ventrally (Figs. 133, 134).

The egg sac lacks flaps and has a short stalk (Fig. 451).

*Natural History.* The spider mimics a berry. According to Vellard (1926) the species has a preference for orange trees. It makes three to five egg sacs, each a little sphere with four white spots below the midline, 10 mm in diameter, hanging on a stalk about 3 mm long. The venom is not active (for mammals?). From the collections available, *M. carpogastra* seems locally more common than other *Mastophora* species.

*Distribution.* Southeastern Brazil, from Rio de Janeiro State to Rio Grande do Sul (Map 3B).

*Specimens Examined.* BRAZIL Bahra [?Bahia], 1 ♀ (MNHN 18669). *Rio de Janeiro:* Rio de Janeiro, 2 ♀ (NHMW); Aug. 1937, 1 imm. (Mello-Leitão, MACN 515). *São Paulo:* Agua da Figueira Maracaí, 9 Feb. 1967, 1 ♀ (G. Brisolla, IBSP 2064); Barueri, Apr. 1963, 1 ♀, 5 egg sacs (K. Lenko, MZSP 3069); 16 Mar. 1966, 1 imm. (K. Lenko, MZSP 5265); Diadema, June 1986, 1 ♀ (R. Snignani, IBSP 4992); Embu, Sept. 1982, 1 ♀, egg sac (A. L. Prestes, IBSP 3501); Jandira, May 1980, 1 ♀ (C. Luiz, IBSP 963); Osasco, 25 Mar. 1974, 1 ♀ (F. Ramirez, IBSP 2721); Pacaembu, Nov. 1942, 1 ♀ (Braudas, MZSP 357); Perdigões,

26 Aug. 1951, 1 ♀ (H. Camargo, MZSP 7496); Ribeirão Pires, May 1975, 1 ♀ (F. B. Lopes, IBSP 3591); Rio Claro, July 1941, 1 ♀ (P. Pereira, MZSP 4552); 4 May 1942, 1 imm. (Clareteano, MZSP 4402); Sacoma, 7 Sep. 1943, 1 ♀ (J. Lima, MZSP 4403); São Paulo, July 1921, 1 ♀ (MZSP 8068); Feb. 1928, 1 ♀ (J. Lima, MZSP 8070); 31 Jan. 1934, 1 ♀ (M. Oliveira, IBSP 1920); 26 Feb. 1936, 1 ♀ (S. Remetente, IBSP 3598); 3 Oct. 1951, 1 ♀ (R. Vieira, IBSP 586); 17 Mar. 1955, 1 ♀, 2 egg sacs (J. Navas, IBSP 1176); June 1960, 2 ♀ (J. London, IBSP 1552); June 1960, 1 ♀ (L. Zodiogansky, IBSP 1516); 21 Dec. 1960, 1 ♀ (W. Andrade, IBSP 1618), 10 July 1962, 1 ♀ (R. R. Guiduglin, IBSP 1775); 21 Dec. 1961, 1 ♀ (F. V. Boas, IBSP 1620); 18 July 1962, 1 ♀ (E. Botelho, IBSP 1776); 1 Apr. 1963, 1 ♀ (Merck Co., IBSP 1834); 2 Aug. 1965, 1 ♀ (S. Remetente, IBSP 1949); 16 Dec. 1971, 1 ♀ (E. Rafael de Simone, IBSP 309); June 1975, 1 ♀ (J. S. Gomes, IBSP 3594); Feb. 1976, 1 ♀ (M. Uchiyama, IBSP 3597); July 1975, 1 ♀ (G. P. Treu, IBSP 3595); Feb. 1976, 1 ♀ (E. I. Yamane, IBSP 17789); Feb. 1982, 1 ♀, egg sac (D. Zammataro, IBSP 3025); 26 Feb. 1982, 1 ♀, egg sac (M. C. Franco, IBSP 14279); 22 Jan. 1986, 1 ♀ (E. Steiner, IBSP 8471); 21 Mar. 1986, 1 ♀ (D. R. Bizzachi, IBSP 14424); 1 Feb. 1991, 1 ♀ (J. Batista, IBSP 14398); Oct. 1992, 1 ♀ (C. M. Nericci, IBSP 5827); 7 Oct. 1996, 1 ♀ (A. Fallatti, IBSP 14192); 11 Aug. 1997, 1 ♀ (S. M. Carmelino, IBSP 14012); 18 Mar. 1998, 1 ♀ (A. Pastore, IBSP 16208); Brooklin, Feb. 1962, 1 ♀ (L. Travassos, MZSP 4347); Hato Museu Paulista, Feb. 1951, 1 ♀ (C. Rabello, MZSP 6609); Ipiranga, Nov. 1906, Oct. 1912, 2 ♀ (Ihering, L. M. Torre, MZSP 3047); Mar. 1924 (J. Lima, MZSP 3048); 15 Mar. 1961, 1 ♀, 5 egg sacs (Almeida and Cautero, MZSP 4359); 4 May 1961, 1 ♀, 2 egg sacs (N. C. Oliveira, MZSP 4340); 23 Jan. 1984, 1 imm. (C. R. F. Brandão, MZSP 435); Magi das Cruzes, Ranch das Carmelitas, June 1976, 1 ♀ (C. Torrus, S. Filho, MZSP 11433). *Santa Catarina:* Caçador, 1982, 1 ♀ (D. Lorenzato, IBSP 3539). *Rio Grande do Sul:* Porto Alegre, 1 ♀, 1 egg sac (P. Buck, MNRJ 1831); 7 July 1986, 1 ♀ (S. Oresco, MCN 15236); S. Leopoldo, 24 May 1964, 1 ♀ (C. Valle, MZSP 4233); 14 Oct. 1965, 1 ♀ (C. Valle, MZSP 5422).

### *Mastophora seminole* new species

Figures 135–141; Map 2G

*Holotype.* Female holotype from Hollendale, Broward Co., Florida, 11 June 1987 (W. Birch), in FSCA. The specific name is a noun in apposition after the name of the local Indian tribe.

*Description.* Female holotype. Carapace olive-brown. Chelicerae, labium, endites olive-brown. Sternum orange-olive. Coxae and distal leg articles olive, distally darkest. Abdomen anteriorly gray, posteriorly light gray with dark pattern on each side (Fig.



137); in anterior view, dark area forming a triangle as wide as humps above, pointed to carapace below, each side white. Venter olive gray with white longitudinal rectangle. Carapace glossy and with tubercles (Figs. 135, 136). Abdomen with a pair of dorsal humps and triangular (Figs. 137, 138). Total length 11.6 mm. Carapace 4.4 mm long, 4.3 wide in thoracic region, 2.7 wide at posterior lateral eyes. First femur 3.8 mm, patella and tibia 5.2, metatarsus 3.7, tarsus 1.2. Second patella and tibia 3.8 mm, third 2.2, fourth 3.3. Length of first patella and tibia 1.2 times width of carapace.

Males are not known.

*Diagnosis.* *Mastophora seminole* has a humped, somewhat triangular abdomen (Figs. 137); the epigynum is as in the humpless *M. yeargani*, with the slits dorsally at some distance from the ventral borders of large shallow depressions (Figs. 140, 141).

*Distribution.* Southern Florida (Map 2G).

*Specimens Examined.* No other specimens have been collected.

### *Mastophora vaquera* Gertsch

Figures 142–152, 452; Map 2G

*Mastophora vaquera* Gertsch, 1955: 240; figs. 15–18, ♀. Female holotype from Torriente, Matanzas, Cuba, in AMNH, examined. Brignoli, 1983: 274. Platnick, 2001.

*Description.* Female holotype. Carapace orange-brown, bald dorsally with some white setae on sides. Sternum, legs orange-brown. Median eyes on bulge, lateral eyes on bulges. Abdomen light orange-brown with darker area anteriorly between swellings (Fig. 145); venter with white square. Abdomen with humps and an anterior, lateral swelling on each side (Figs. 145, 146). First femur with distal, anteriorly small tubercles (Fig. 144). Total length 10.5 mm. Carapace 3.6 mm long, 3.5 wide in thoracic region, 2.3 wide at lateral eyes. First femur 3.2 mm, patella and tibia 4.7, metatarsus 3.2, tarsus 1.1. Second patella and tibia 3.4 mm, third 2.0,

fourth 3.1. Length of first patella and tibia 1.3 times width of carapace.

Males are not known.

*Variation.* Total length of females 8.5–10.5 mm. The tubercles on the femur of the Cuabitas specimens are smaller, less distinct. Although the shape of the abdomen and their coloration are similar, the epigyna of the two specimens differ (Figs. 147–152). The illustrations (Figs. 142–149) were made from the female holotype.

*Diagnosis.* *Mastophora vaquera* is distinguished from others by the shape of the abdomen, humps, and two pairs of swellings, and by the dorsal oval depressions of the opening slits on the posterior of the epigynum (Figs. 148, 151).

The egg sac has only minute flaps (Fig. 452).

*Distribution.* Cuba (Map 2G).

*Specimens Examined.* CUBA *Santiago*: Cuabitas, Oriente [20°04'N, 75°48'W], 20 Aug. 1949, 1♀ (AMNH). *Holquin*: Bañes, 1–3 Aug. 1955, egg sac (A. F. Archer, AMNH).

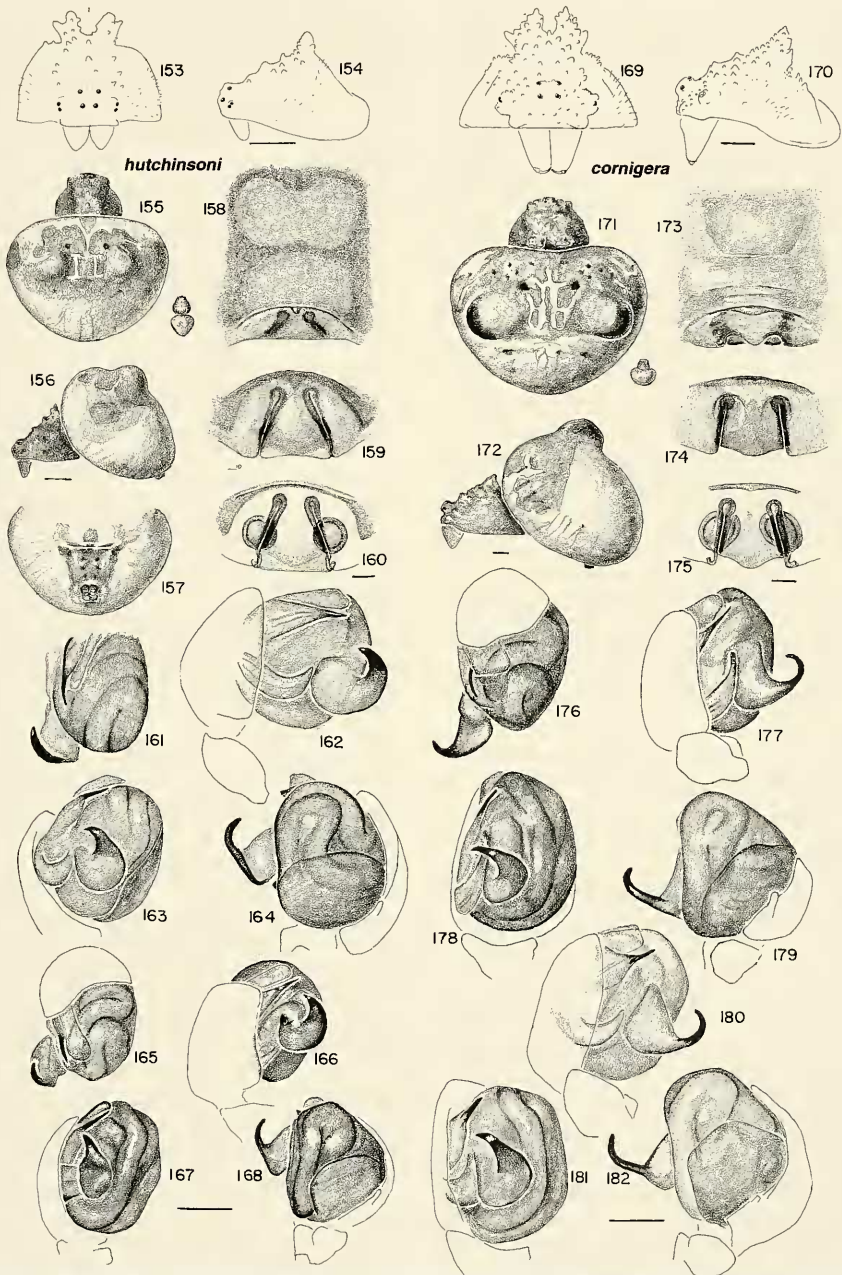
### *Mastophora hutchinsoni* Gertsch

Figures 153–168, 453, 454; Map 2E

*Cyrtarachne cornigera*:—McCook, 1890: 98, 99, fig. 81, egg sacs. Kaston, 1948: 231, figs. 741, 742, 2039 (misidentification).

*Mastophora hutchinsoni* Gertsch, 1955: 236, pl. 6, fig. 3, text figs. 10–14, 39, 47, 48, ♀, ♂. Female holotype, from Somers [Westchester Co.], New York State, in AMNH, not examined. Brignoli, 1983: 273. Yeargan, 1988: 524. Gemeno et al., 2000: 1235. Haynes et al., 1996: 76. Platnick, 2001.

*Description.* Female from Virginia. Carapace brown, sides and posterior much darker than median and cephalic region, short setae on sides and no rim. Abdomen with transverse black band with characteristic light lines (Fig. 155); venter black including behind spinnerets and anterior of pedicel, with four white spots on each side between epigynum and spinnerets (Figs. 157). Abdomen with two humps (Figs. 155, 156). Total length 7.3 mm. Carapace 3.3 mm long, 2.7 wide in thoracic region, 2.3 wide at lateral eyes. First femur 2.5 mm, patella and tibia 3.6, metatarsus 2.8, tarsus 0.8. Second patella and tibia 2.7



Figures 153–168. *Mastophora hutchinsoni* Gertsch. 153–160, female. 153, 154, carapace and chelicerae. 153, frontal. 154, lateral. 155, 156, carapace and abdomen. 155, dorsal, with male. 156, lateral. 157, abdomen, ventral. 158–160, epigynum. 158, posterior. 159, posterior, cleared. 161–168, male left palpus, stained. 161–164, (New Hampshire). 165–168, (Kentucky). 161, 165, apical. 162, 166, mesal. 163, 167, ventral. 164, 168, ectal.

Figures 169–182. *M. cornigera* (Hentz). 169–175, female. 169, 170, carapace and chelicerae. 169, frontal. 170, lateral. 171, 172, carapace and abdomen. 171, dorsal, with male. 172, lateral. 173–175, epigynum. 173, ventral. 174, posterior. 175, posterior, cleared. 176–182, male left palpus, stained. 176–179, (California). 180–182, (Texas). 176, apical. 177, 180, mesal. 178, 181, ventral. 179, 182, ectal.

Scale lines. 1.0 mm; genitalia, 0.1 mm.

mm, third 1.6, fourth 2.4. Length of first patella and tibia 1.3 times width of carapace.

Male from New Hampshire. Prosoma beige with two median tubercles and forks. Abdomen whitish with paired humps. Total length 1.7 mm. Carapace 0.86 mm long, 0.71 wide in thoracic region, 0.53 wide at lateral eyes. First femur 0.80 mm, patella and tibia 0.91, metatarsus 0.41, tarsus 0.27. Second patella and tibia 0.80 mm, third 0.42, fourth 0.63. Length of first patella and tibia 1.3 times the width of carapace.

*Note.* The male was matched with females because of its northerly collecting site. They have also been collected at sites for females in Kentucky and South Carolina.

*Variation.* Total length of females 6.2–10.4 mm. The males may lack humps. The illustrations were made from a female from Rhode Island, the male from southern New Hampshire, and a male from Kentucky.

*Diagnosis.* The humps of the abdomen (Fig. 155) and the black median coloration of the venter, sometimes containing two longitudinal white patches (Fig. 157), separate the species from *M. bisaccata*. Unlike *M. cornigera*, which has humps, the slits on the posterior of the epigynum approach each other ventrally (Figs. 158, 160), as they do in *M. bisaccata*.

The palpus (Figs. 161–168) is similar to that of *M. bisaccata* (Figs. 59–62), with a narrow space surrounded by the median apophysis in ectal view (Figs. 164, 168) but differs in the shape of the round base of the median apophysis (Figs. 162, 166).

The egg sacs are unique compared with those of other species. They are attached by the broad base with the funnel facing away from the attachment (Figs. 153, 154).

*Natural History.* In Ohio, females were found in a house yard on a variety of low branches of a variety of trees, including crab apple, redbud, hawthorn, burr oak (R. Bradley, in letter). Spiders were collected primarily from hackberry (*Celtis oc-*

*cidental* L.) and wild cherry (*Prunus serotina* Ehrhard) in Kentucky (Yeargan, 1988), on an abandoned apple tree in Virginia, in a peach orchard in South Carolina, and in an apple orchard in Illinois. Prey caught in Kentucky were reported by Yeargan and Quate (1996).

Although the egg sacs look like hazelnuts or a small broken branch, the species may be found by searching for the egg sacs in autumn and winter after the leaves have fallen.

*Distribution.* Northeastern United States from New Hampshire and South Carolina to Minnesota (Map 2E).

*Specimens Examined.* NEW HAMPSHIRE *Hillsborough Co.:* Ponemah [in Amherst], Aug. 1912, 1♂ (E. B. Bryant, MCZ). MASSACHUSETTS 1♀ (Samborn, MCZ). *Middlesex Co.:* Pepperell, 15 July 1978, 1 imm. ♂, 1.5 mm (F. J. Murphy, JM). RHODE ISLAND *Providence, 1♀* (N. Banks, MCZ). CONNECTICUT *Hartford Co.:* Rocky Hill, 23 Oct. 1940, 1♀ (A. Morgan, USNM). NEW JERSEY *Burlington Co.:* Riverton, Sept. 1926, 2 imm., 1♂ (R. J. Sim, OSU). *Hunterdon Co.:* White House Station, Sept. 1917, 1♀ (J. J. Brochon, USNM). *Morris Co.:* Dover, 8 Dec. 1950, egg sacs (USNM). OHIO *Delaware Co.:* 5 km W of Delaware Dam, 40.37°N, 83.10°W, Oct. 2001, 2♀, egg sacs (R. Bradley, OSU). DISTRICT OF COLUMBIA *Washington, yard, 18 Oct. 1920, 1♀* (USNM). VIRGINIA *Falls Church, 5♀, 2 imm.* (N. Banks, MCZ). *Augusta Co.:* Augusta, 14 June 1976, 1♂; 6 Oct. 1976, 1♀ (J. P. McCaffrey, CNC). SOUTH CAROLINA *Anderson Co.:* Simpson Agric. Exp. Station, 10 July 1978, 1♂; 13 Aug. 1979, 1♀; 19 Sep. 1978, 1♀ (G. Lee, CUAC). KENTUCKY *Fayette Co.:* Lexington, 7 Sep. 1990, 1♀ (K. V. Yeargan, MCZ); 20 Sep. 1990, 1♀ (K. V. Yeargan, KVV); 2 Oct. 1999, 1♀ (K. V. Yeargan, MCZ). *Clark Co.:* Feb. 1996, egg sac, 4♂ (K. V. Yeargan, KVV). TENNESSEE *Ashburn, 30 mi. N. Nashville, 17 July 1933, 1♂* (W. Ivie, AMNH). MICHIGAN *Livingston Co.:* E. S. George Reserve, 22 July 1951, 1 imm. (H. K. Wallace, FSCA). INDIANA *Putnam Co.:* Greencastle, 1♀ (N. Banks, MCZ). ILLINOIS *Champaign Co.:* Univ. Illinois apple orchard, Sept. 1993, 1♀ (S. D. Gaimari, INHS). *Jackson Co.:* 8 km S Carbondale on avocado plant, Oct. 1976, 1♀ (JAB). MINNESOTA *Hennepin Co.:* Minneapolis, 1 Nov. 1931, 1♀ (W. J. Gertsch, AMNH).

### *Mastophora cornigera* (Hentz)

Figures 169–182, 455; Map 2G

*Epeira cornigera* Hentz, 1850: 20, pl. 3, fig. 8, ♀.

Immature female holotype from Alabama, destroyed. Hentz, 1875: 123, pl. 14, fig. 8, ♀.



*Cyrtarachne bicurvata* Becker, 1879: 77, pl. 2, figs. 16–19, ♀. Female holotype from peach tree, Donaldsonville, Louisiana, in IRSNB, examined. First synonymized by Marx (1890).

*Cyrtarachne cornigera*:—Keyserling, 1880: 300, pl. 4, fig. 4, ♀. McCook, 1890: 98, fig. 80 (in part).

*Ordgarius cornigerus*:—Marx, 1890: 541. McCook, 1894: 197, pl. 12, fig. 1, ♀.

*Glyptocranium cornigerum*:—Simon, 1895: 882, 885. Bonnet, 1957: 1996.

*Mastophora cornigera*:—Mello-Leitão, 1931: 70, figs. 9, 20. Gertsch, 1955: 233, pl. 6, fig. 2, text figs. 1–5, 37, 41, 42, ♀, ♂. Platnick, 1997: 513. Platnick, 2001.

**Description.** Female from Alabama. Carapace evenly colored orange. Chelicerae, endites, labium orange. Sternum orange. Legs orange, darker above. Abdomen with black caps on humps, anterior gray with light lines, posterior light (Fig. 171); venter with a white square. Carapace granular with many small tubercles and dark spots on sides (Figs. 169, 170). Abdomen with pair of humps (Fig. 171). Total length 12.0 mm. Carapace 5.6 mm long, 4.6 wide in thoracic region, 3.0 wide at lateral eyes. First femur 4.2 mm, patella and tibia 6.0, metatarsus 4.0, tarsus 1.2. Second patella and tibia 4.7 mm, third 2.6, fourth 4.3. Length of first patella and tibia 1.3 times width of carapace.

Male from California. Carapace beige with median dorsal white band including median horns, no tubercles. Sternum, legs golden yellow. Abdomen white, anteriorly dusky; venter dark yellow. Carapace granulate. Total length 1.7 mm. Carapace 0.88 mm long, 0.79 wide in thoracic region, 0.52 wide behind posterior lateral eyes. First femur 0.66 mm, patella and tibia 0.79, metatarsus 0.40, tarsus 0.28. Second patella and tibia 0.68 mm, third 0.41, fourth 0.54. Length of first patella and tibia 1.1 times width of carapace.

**Note.** Males came from California, an area from which only one species of *Mastophora*, *M. cornigera*, is known.

**Variation.** Total length of females 8.8–14.0 mm, males 1.6–1.7. The illustrations were made from the female from Alabama (Figs. 169–175) and males from California

(Figs. 176–179) and Texas (Figs. 180–182). Adult males may lack humps.

**Diagnosis.** Unlike most other North American species, *M. cornigera* has distinct humps on the abdomen, often with a black cap or slightly sclerotized (Fig. 173), and the epigynum differs from that of *M. hutchinsoni* (Figs. 159, 160) by having almost parallel slits, only slightly converging ventrally, on the posterior face of the epigynum (Figs. 174, 175), and by lacking the lip surrounding the slits as in *M. archeri* (Fig. 188).

The male differs from other North American species by having the space within the curl of the median apophysis in ectal view wider than long (Figs. 179, 182), and from *M. yeargani* by the base of the embolus, which, in mesal view, is longer than wide (Figs. 177, 180).

The egg sac has small flaps or none and a relatively wide stalk (Fig. 455).

**Natural History.** Unlike other North American species, *M. cornigera* is active in California all year. Also, unlike other North American species, the males emerge from the egg sac as mature individuals. This species was found on cycad leaf in full sun in San Diego, and on *Jatropha curcas* euphorbia in Nicaragua.

**Distribution.** From Kentucky and Tennessee west to California and south to Central America (Map 2G).

**Specimens Examined.** KENTUCKY *Fayette Co.*: Univ. Kentucky Maine Chance farm, Sept. 1996, 1♀ (K. V. Yeargan, KVV). TENNESSEE Ashburn, 30 mi. N Nashville, 17 July 1933, 1♀ (W. Ivie, AMNH). ALABAMA *Mobile Co.*: Mobile, 1♀ (N. Banks, MCZ); 1932, 1♀ (H. P. Loding, MCZ). LOUISIANA *East Baton Rouge Par.*: Baton Rouge, Apr. 1916, 1♀ (Newell, MCZ). *Orleans Par.*: New Orleans, 1918, 1♀ (H. E. Hubert, USNM); 1 Oct. 1935, 1♀ (T. E. Snyder, MCZ); 26 Sep. 1936, 1♀ (J. N. Cowanloch, USNM). TEXAS *Travis Co.*: Shellberg Tract, 30°25'N, 97°52'W, 18–19 Apr. 1994, 3♂ (Dunlap et al., TAMU). *Galveston Co.*: Texas City, 1921?, 2♀ (S. W. Bilsing, MCZ). *San Patricio Co.*: Welder Wildlife Refuge, 11.8 km NE Sinton, 17 Oct. 1967, 1♂ (C. Parrish, CAS). *Hidalgo Co.*: Edinburg, Oct. 1934, 3♀, 1♂; 1935, 1♀ (S. Mulaik, AMNH); 7 Dec. 1935, 1♂ (M. Welch, AMNH), 2 imm., 1♂ (S. Mulaik, AMNH); 18 km SE Pharr, Santa Ana Wildlife Refuge, 1 Oct. 1977, 1♀ (O. Ahrenholtz, AMNH); 20

Dec. 1983, 1♀ (M. K. Stowe, MKS); 27 June 1984, 1♀ (M. K. Stowe, MKS); Mercedes, 10 Apr. 1986, egg sac, 70 imm., 59♂ (D. A. Dean, TAMU). *Cameron Co.*: Brownsville, 9 Apr. 1986, hatched 2 June 1986, 1 egg sac, 64 imm., 62♂ (D. A. Dean, TAMU); Harlingen, Feb. 1980, 1♀, 64 imm., 63♂ (C. W. Agnew et al., TAMU); E of Harlingen, 3 Jan. 1936, 1♀ (L. I. Davis, M. Stegmeier, AMNH). *ARIZONA Maricopa Co.*: Phoenix, Apr. 1941, 1♀ (AMNH). *CALIFORNIA Contra Costa Co.*: Walnut Creek, Sydney Drive, July 1992, 1♀, 1♂ (T. Trosin, J. Fraser, CAS). *Santa Clara Co.*: Palo Alto, 1914, 1♀ (H. Heath, MCZ). *Santa Barbara Co.*: Santa Barbara, 5 Oct. 1948, 1♀ (H. Shantz, AMNH). *Los Angeles Co.*: Claremont, 1♀ (N. Banks, MCZ); Glendale, 1♀, many ♂ (C. E. Hutchinson, AMNH, MCZ); Los Angeles, 1♀ (MNHN, 3059); 10 Oct. 1942, 5♂ (J. H. Branch, AMNH); East Los Angeles, 1943, 1♀ (C. Cowles, AMNH); Malibu, Nov. 1968, 1♀, 3 egg sacs (USNM); Westwood Village, Aug.–Oct. 1942, 1♀ (P. Verrity et al., FSCA). *Orange Co.*: Santa Ana, 4♂ (R. K. Bishop, USNM); San Juan Capistrano, 25 Sept. 1952, 1♀, 7 egg sacs (R. E. Ryckman, AMNH). *San Bernardino Co.*: San Bernardino, 1880, 1♀ (J. B. Parish, MCZ). *San Diego Co.*: San Diego, 2♀ (USNM), 4 Oct. 1974, 1♀ (D. Bishop, USNM); San Diego, Vista, 8 June 1989, 1 imm. (J. W. Schott, MCZ); Chula Vista, 5 Dec. 1981, 1♀ (H. V. Weems, FSDA); 10 mi. NE Ramona, 22 July 1982, 1♀ (J. Halstead, DU); Lakeside, 1♀ (C. Kingery, USNM); Feb. May 1968, egg sacs, ♂♂ (C. Kingery, USNM). *MEXICO Baja California Sur*: 44 km W La Paz, 0.2 km S km 44, on Highway 1, 31 Dec. 1978, 1♀ (D. Weissman, R. Love et al., CAS). *NICARAGUA Managua*: Mateare, 12 Sep. 1995, 1♀ (C. Grimm, M. Maes, MCZ).

### *Mastophora archeri* Gertsch Figures 183–193, 456; Map 2E

*Mastophora archeri* Gertsch, 1955: 239; figs. 6–9, 36, 45, 46, ♀, ♂. Female holotype from Fruitland Park, Florida, in AMNH, examined. Brignoli, 1983: 273. Platnick, 2001.

**Description.** Female holotype. Carapace orange-brown. Sternum dark orange. Legs orange-brown, indistinctly ringed. Abdomen anteriorly gray, posteriorly white; venter with white square. Carapace with short tubercles (Figs. 183, 184). Median eyes on bulge, lateral eyes on bulges. Abdomen with small humps (Fig. 185). Total length 11.5 mm. Carapace 4.2 mm long, 4.3 wide in thoracic region, 2.7 wide at lateral eyes. First femur 3.8 mm, patella and tibia 5.6, [metatarsus 3.5, tarsus 1.5, after Gertsch, 1955]. Second patella and tibia 4.1 mm,

third 2.3, fourth 3.7. Length of first patella and tibia 1.3 times width of carapace.

Male allotype. Carapace orange, darkest on sides, a median white line and median of forked tubercles white. Sternum orange. Legs orange. Abdomen orange-white without marks. Carapace with two small asymmetrical tubercles in addition to forked tubercles. Abdomen with indistinct humps. Total length 1.7 mm. Carapace 0.86 mm long, 0.78 wide in thoracic region, 0.53 wide at lateral eyes. First femur 0.79 mm, patella and tibia 0.87, metatarsus 0.44, tarsus 0.33. Second patella and tibia 0.74 mm, third 0.54, fourth 0.71. Length of first patella and tibia 1.1 times width of carapace.

**Note.** A male from Gainesville, Florida, was raised from the egg sac. The match of the male allotype is uncertain.

**Variation.** Total length of females 9.4–14.8 mm. The illustrations were made from the female holotype (Figs. 183–189) and the raised male from Gainesville (Figs. 190–193).

**Diagnosis.** *Mastophora archeri* is distinguished from *M. cornigera* by the smaller tubercles on the carapace (Figs. 183, 184) and left and right lip on the posterior of the epigynum (Figs. 188, 189), and from *M. hutchinsoni* by having a white square on the venter and by the sculpturing of the epigynum.

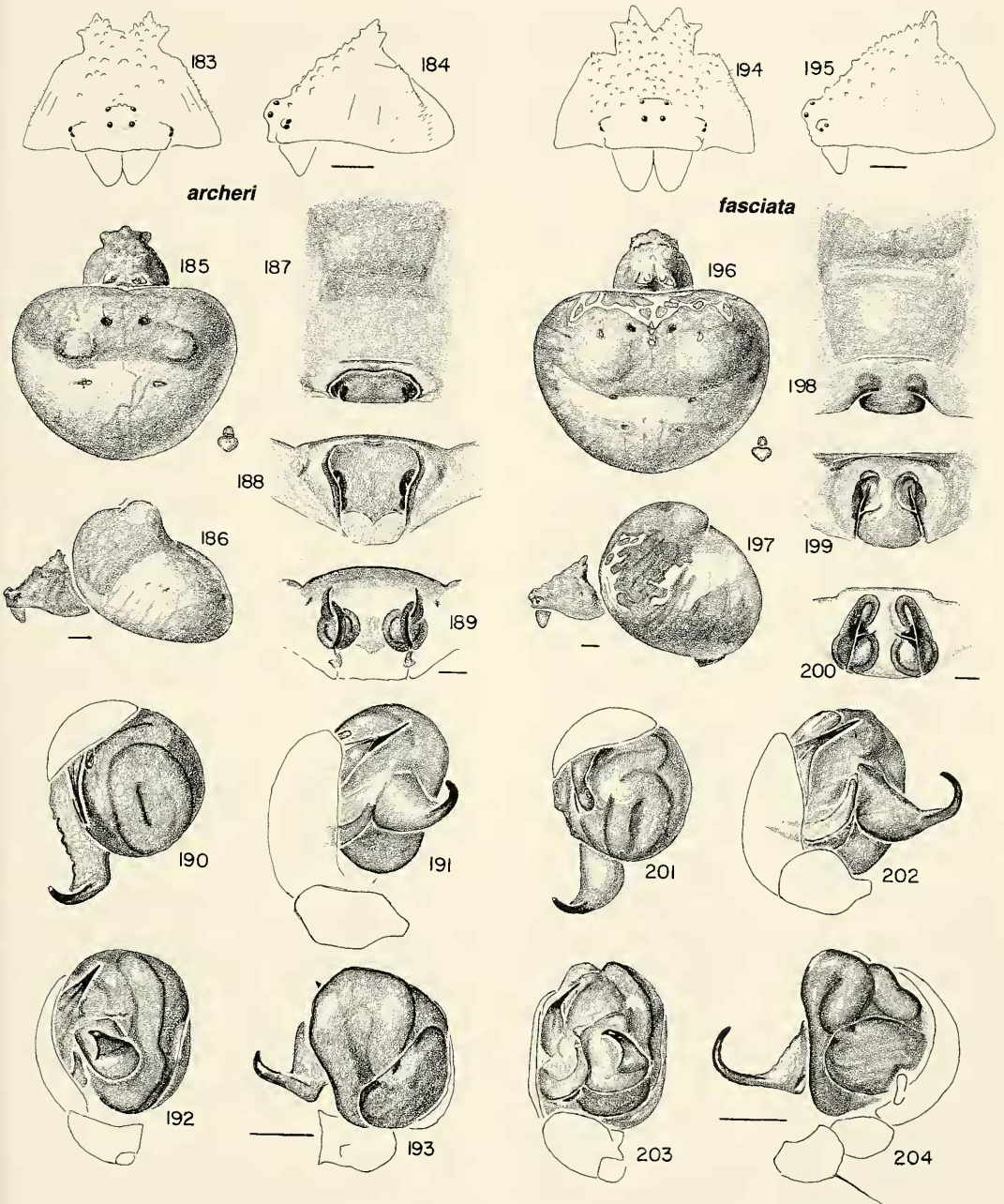
The palpus of the male has the space surrounded by the median apophysis wider than long (Fig. 193) and differs from *M. phrynosoma* and *M. hutchinsoni* by having only a minute terminal apophysis (Figs. 190, 191). It differs from *M. phrynosoma* by the narrow radix (Fig. 191).

The egg sac has small flaps and a relatively long stalk of median thickness (Fig. 456).

**Natural History.** Collected from *Myrica* in hammock woods in Alabama.

**Distribution.** Southern United States from South Carolina, Florida, and Alabama to Kansas (Map 2E).

**Paratypes.** ALABAMA Baldwin Co.: Lagoon, 29



Figures 183–193. *Mastophora archeri* Gertsch. 183–189, female. 183, 184, carapace and chelicerae. 183, frontal. 184, lateral. 185, 186, carapace and abdomen. 185, dorsal, with male. 186, lateral. 187–189, epigynum. 187, ventral. 188, posterior. 189, posterior, cleared. 190–193, male left palpus, stained. 190, apical. 191, mesal. 192, ventral. 193, ectal.

Figures 194–204. *M. fasciata* Reimoser. 194–200, female. 194, 195, carapace and chelicerae. 194, frontal. 195, lateral. 196, 197, carapace and abdomen. 196, dorsal, with male. 197, lateral. 198–200, epigynum. 198, ventral. 199, posterior. 200, posterior, cleared. 201–204, male left palpus, stained. 201, apical. 202, mesal. 203, ventral. 204, ectal.

Scale lines. 1.0 mm; genitalia, 0.1 mm.



Sep. 1949, 1♂ allotype (A. F. Archer). KANSAS *Douglas Co.*: 22 Sept. 1948, 1♀ (R. H. Beamer, AMNH).

*Specimens Examined.* SOUTH CAROLINA Charleston, Oct. 1941, 1♀ (E. B. Chamberlain, USNM). FLORIDA *Alachua Co.*: Devil's Millhopper State Park, reared spring 1992, 4♂ (M. K. Stowe, MKS). *Hillsborough Co.*: Thonotosassa, 11 Dec. 1969, 1♀ (D. A. Vaughn, FSCA). ALABAMA *Mobile Co.*: Mobile, 12 Nov. 1939, 1♀ (A. C. Cole, AMNH); Mt. Vernon, Oct. 1941, 1♀ (H. P. Löding, AMNH).

### *Mastophora fasciata* Reimoser

Plate 1; Figures 194–204, 457; Maps 2F, 3A

*Mastophora fasciata* Reimoser, 1940: 356, fig. 8, ♀. Female holotype, from Orosi, Prov. Cartago, central plain [12 km SE Cartago], Costa Rica, in NMW, examined. Roewer, 1942: 900. Platnick, 2001.

*Mastophora pickeli occidentalis* Schenkel, 1953: 29. Female holotype from Pozón [Falcón], Venezuela, in NMB, examined. Brignoli, 1983: 274. Platnick, 2001.

*Note.* *Mastophora p. occidentalis* has the same small lobe on the posterior margin of the epigynum, and the same shadows on the posterior face as in *M. fasciata*. They also share the very broad humps of the abdomen and the posterior light band.

*Description.* Female from Costa Rica. Carapace light orange-brown. Sternum brown. Legs lighter brown. Abdomen white with black and gray marks (Fig. 196); venter light brown, center barely lighter than sides. (Reimoser described a posterior, transverse, yellow-red band, which has disappeared from the holotype, but is light in other specimens.) Humps broad (Fig. 196). Holotype total length 11.5 mm. Carapace 4.7 mm long, 5.0 wide in thoracic region, 3.0 wide at lateral eyes. First femur 4.3 mm, patella and tibia 6.3, metatarsus 4.4, tarsus 1.2. Second patella and tibia 4.6 mm, third 2.7, fourth 4.0. Length of first patella and tibia 1.3 times width of carapace.

Male from Costa Rica. Carapace yellow-brown with white, central mark covering median tubercles. Legs light yellow-brown. Abdomen dorsally white, ventrally yellow-brown. Eyes without pigment. Carapace rugose with posterior median forked tubercles. Abdomen subtriangular without humps. Palpal patella with one macroseta. Total length 1.6 mm. Carapace 0.74 mm long, 0.65 wide in thoracic region, 0.46 wide behind posterior lateral eyes. First femur 0.55 mm, patella and tibia 0.65, metatarsus 0.35, tarsus 0.26. Second patella and tibia 0.59 mm, third 0.28, fourth 0.48. First patella and tibia as long as width of carapace.

*Note.* Males were collected with females at San Antonio de Escazú.

*Variation.* Total length of females 11.5–14.5 mm. Both males and shriveled females have a triangular abdomen, whereas that of a well-fed female is more rounded. The illustrations were made from the female holotype (Figs. 194–200) with a specimen from Puntarenas Province, Costa Rica.

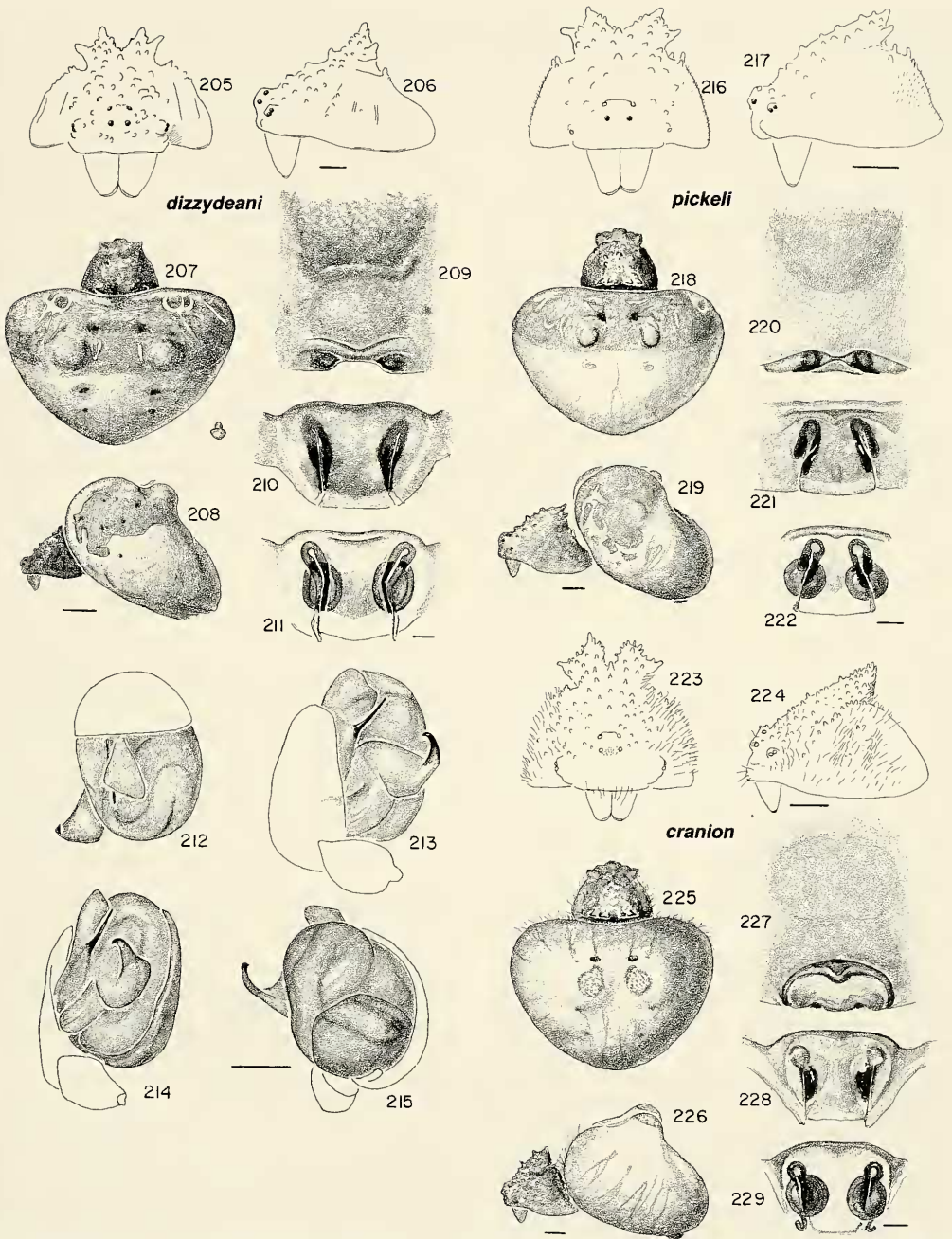
*Diagnosis.* The female is distinguished from other species by the many small carapace tubercles (Figs. 194, 195), by the broad humps of the abdomen (Fig. 196), and by the ventrally converging slits of the epigynum (Figs. 199, 200).

The male has a median apophysis that is longer than that of other species (Figs. 202, 204) and more rounded than that of *M. leucabulba* (Figs. 293, 295) and *M. alvareztoroi* (Fig. 306, 307). The median apophysis is almost as long as the diameter of the bulb (Fig. 204).

The egg sac lacks flaps (Fig. 457).

*Natural History.* Males are mature when they leave the egg sac.

*Distribution.* The species is known from Costa Rica and Venezuela (Maps 2F, 3A).



Figures 216–222. *M. pickeli* Mello-Leitão, female. 216, 217, carapace and chelicerae. 216, frontal, 217, lateral. 218, 219, carapace and abdomen. 218, dorsal. 219, lateral. 220–222, epigynum. 220, ventral. 221, posterior. 222, posterior, cleared.

Figures 223–229. *M. cranion* Mello-Leitão, female. 223, 224, carapace and chelicerae. 223, frontal. 224, lateral. 225, 226, carapace and abdomen. 225, dorsal. 226, lateral. 227–229, epigynum. 227, ventral. 228, posterior. 229, posterior, cleared.

Scale lines. 1.0 mm; genitalia, 0.1 mm.

*Specimens Examined.* COSTA RICA *San José*: San José, 1♀ (Tristan, MCZ); San Antonio de Escazú, 1,350 m, May 1980, 1♀ (W. Eberhard S31, MCZ); 7 Sept. 1980, imm., ♀, many ♂ (W. Eberhard SJ1-26, MCZ); 11 Oct. 1980, 1♀ (W. Eberhard S31, MCZ). *Puntarenas*: Parrita, 30 m, 12 Jan. 1987, 3♀, 2♂ (W. Eberhard FN9-40ff, MCZ).

***Mastophora dizzydeani* Eberhard**  
Figures 205-215; Map 3A

*Mastophora dizzydeani* Eberhard, 1981: 144, figs. 1-9, ♀, ♂. Female holotype from field of Melendez campus of the Universidad del Valle on the southern edge of Cali, Colombia, in MCZ, examined. Platnick, 1989: 340. Platnick, 2001.

*Description.* Female holotype. Carapace dark brown. Sternum orange-brown. Legs brown. Abdomen white anteriorly, dorsally with transverse gray band, posteriorly dusky white (Figs. 207, 208); venter with a median white square. Carapace heavily sclerotized, grooves on sides, many tubercles flat and wide (Figs. 205, 206). Abdomen subtriangular with pair of dorsal humps (Fig. 207). Total length 13.3 mm. Carapace 5.7 mm long, 5.3 wide in thoracic region, 3.3 wide at lateral eyes. First femur 4.8 mm, patella and tibia 6.7, metatarsus 4.7, tarsus 1.5. Second patella and tibia 5.0 mm, third 2.8, fourth 4.4. Length of first patella and tibia 1.2 times width of carapace.

Male allotype from eastern edge of Lago Calima. Yellowish white with longitudinal white thoracic mark, and dorsum of abdomen white with a couple of indistinct gray patches anteriorly. Height of clypeus about 1.3 diameters of anterior median eye. Abdomen with a pair of humps. Palpal patella with one weak macroseta. Total length 1.6 mm. Carapace 0.75 mm long, 0.74 wide in thoracic region, 0.55 wide at lateral eyes. First femur 0.71 mm, patella and tibia 0.72, metatarsus 0.41, tarsus 0.26. Second patella and tibia 0.65 mm, third 0.36, fourth 0.51. Length of first patella and tibia about same length as width of carapace.

*Note.* Males and females have been collected together at Cali, Colombia.

*Variation.* Total length of females 10.8-

13.3 mm. The illustrations were made from specimens from Cali.

*Diagnosis.* Females are distinguished by the wide heart-shaped abdomen with two humps (Fig. 207) and the distinctly shaped dark marks around the slits on the posterior of the epigynum (Fig. 210). The atria separate from each other ventrally (Fig. 211).

Males have a smaller median apophysis (Fig. 213) than that of *M. fasciata*, in ectal view surrounding a rounded space (Fig. 215).

*Natural History.* The spiders rest on exposed sites: on the barb of a barbed wire, fence posts, and upper surface of leaves. Specimens also were collected on a guayoba tree in a yard and in sugar cane areas. Moths caught include *Spodoptera frugiperda* (a sugar cane pest) and *Leucania* sp. (Eberhard, 1977, 1981).

*Distribution.* Colombia to northern Peru (Map 3A).

*Specimens Examined.* COLOMBIA *Valle*: S of Cali, on plants, 6 June 1948, 1♀ (E. M. Poulsen, ZMUC); nr. Cali, Jan. 1977, imm. ♀ (W. Eberhard, MCZ); Aug. 1977, 1♀, 4♂ (W. Eberhard, MCZ); Lago Calima, 1,400 m, 19 Nov. 1977, 1♀ (W. Eberhard EG 3-20, MCZ); Río Tuluá, 1,100 m, Aug. 1977, 2♂ (W. Eberhard, MCZ). PERU *Piura*: Mal-lagra, Río Chira, 8 June 1941, 2♀, imm. (D. L. Frizzell and H. E. Frizzell, AMNH, CAS).

***Mastophora pickeli* Mello-Leitão**  
Figures 216-222; Map 3D

*Mastophora pickeli* Mello-Leitão, 1931: 73, figs. 6, 18, 24, 25, ♀. Female holotype from Tapera, Pernambuco, Brazil, in MNRJ, 395, examined. The specific name is a noun in apposition after the locality. Roewer, 1942: 901. Platnick, 2001.

*Glyptocranium pickeli*:—Bonnet, 1957: 1998.

*Note.* Vanzolini and Papavero (1968) listed three localities with the name Tapera in Pernambuco. I assume this locality is the only one also listed in the *Index to Map of Hispanic America* (American Geographical Society of New York, 1944), a railroad station, west of Recife.

*Description.* Female holotype. Carapace, chelicerae, labium, endites, brown. Sternum patchy orange-brown. Coxae and



distal leg articles brown. Abdomen black anteriorly enclosing white streaks, white posteriorly (Fig. 218); ventrally with indistinct white square on gray. Carapace with shallow tubercles, glossy, with short setae on sides (Figs. 216, 217). Abdomen without setae, with a pair of wide humps bearing distinct smaller humps dorsally (Figs. 218, 219) and slight swellings on side (Fig. 219). Total length 9.5 mm. Carapace 4.4 mm long, 3.7 wide in thoracic region, 2.4 wide at lateral eyes. First femur 3.4 mm, patella and tibia 4.8, metatarsus 3.3, tarsus 0.9. Second patella and tibia 3.4 mm, third 2.0, fourth 3.2. Length of first patella and tibia 1.1 times width of carapace.

Males are not known.

*Diagnosis.* This species is distinguished by distinct small humps on a larger swelling of the abdomen (Figs. 218, 219) and the epigynum with atria approaching each other (Figs. 221, 222). It differs from *M. ypiranga*, which has a similar epigynum, by having the carapace, viewed from anterior, wider and more swollen, the anterior median eyes facing slightly laterally and ventrally, and the forked tubercles laid back, with their tips facing posteriorly (Fig. 217).

*Distribution.* Known only from the type locality (Map 3D).

*Specimens Examined.* No other specimens have been found.

### *Mastophora cranion* Mello-Leitão Figures 223–229; Map 3D

*Mastophora cranion* Mello-Leitão, 1928: 49, pl. 1, ♀. Female holotype from Tapera, Est. Pernambuco, Brazil, in MNRJ no. 00394, examined. Mello-Leitão, 1931: 72, figs. 2, 14, ♀. Roewer, 1942: 955. Platnick, 2001.

*Glyptocranium cranion*:—Bonnet, 1957: 1997.

*Note.* For locality information, see note under *M. pickeli*.

*Description.* Female holotype. Carapace orange-brown, black pigment between anterior median eyes. Chelicerae, labium, endites brown. Sternum uneven white and brown. Coxae and distal leg articles light brown. Abdomen white with a pair of dor-

sal dark spots, each consisting of stippled black dots (Fig. 218); venter whitish with white square, spinnerets brown. Carapace with long white setae on sides and on clypeus and many small tubercles (Figs. 223, 224). Abdomen with wide humps, anterior edge with long setae (Figs. 225, 226). Total length 10.8 mm. Carapace 4.7 mm long, 4.3 wide in thoracic region, 2.8 wide at lateral eyes. First femur 4.0 mm, patella and tibia 6.3, metatarsus 4.7, tarsus 1.1. Second patella and tibia 4.3 mm, third 2.4, fourth 3.7. Length of first patella and tibia 1.5 times width of carapace.

Males are not known.

*Diagnosis.* *Mastophora cranion* is distinguished from others by black spots on the wide humps of the abdomen (Figs. 225, 226), its long white setae, and its epigynum with the atria in line with the outer margin of the seminal receptacles (Fig. 229).

*Distribution.* Known only from the type locality (Map 3D).

*Specimens Examined.* No other specimens have been found.

### *Mastophora longiceps* Mello-Leitão Figures 230–236; Map 3D

*Mastophora longiceps* Mello-Leitão, 1940: 57, fig. 5. ♀. Female holotype from Ilha São Sebastião, Est. São Paulo, Brazil, in MNRJ, examined. Brignoli, 1983: 273. Platnick, 2001.

*Glyptocranium longiceps*:—Bonnet, 1957: 1998.

*Description.* Female holotype. Carapace beige in center, dark brown on sides. Chelicerae, labium, endites, sternum orange-brown. Coxae and distal leg articles orange-brown. Abdomen contrastingly marked black and white (Figs. 232, 233); venter gray with a pair of light patches. Carapace shiny with short setae on sides, both black and white; forked horns thick, fingerlike (Figs. 230, 231). Legs with short black and white setae. Eyes indistinct without dark pigment. Abdomen bald with wide humps (Figs. 232, 233). Total length 13.0 mm. Carapace 7.5 mm long, 6.0 wide in thoracic region, 3.8 wide at lateral eyes. First femur 6.3 mm, patella and tibia 9.2,

metatarsus 6.4, tarsus 1.6. Second patella and tibia 6.5 mm, third 3.5, fourth 5.6. Length of first patella and tibia 1.5 times width of carapace.

*Diagnosis.* The thick horns (Figs. 230, 231) and wide median plate on the posterior of the epigynum (Fig. 235) separate this species from *M. melloleitaoi* (Figs. 274–280).

*Distribution.* Known only from the type locality (Map 3D).

*Specimens Examined.* No other specimens have been found.

### *Mastophora pesqueiro* new species Figures 237–243; Map 3D

*Holotype.* Female holotype from Pesqueiro, Montenegro, Rio Grande de Sul, Brazil, 14 June 1977 (M. F. Beurmann), in MCN no. 5730. The specific name is a noun in apposition after the locality in Montenegro.

*Description.* Female holotype. Carapace light brown to dark red-brown, glossy, with two lines of white setae posteriorly on each side and a white edge. Chelicerae, labium, endites, sternum, coxae light brown. Distal leg articles light brown, darker ventrally, with white setae. Abdomen marked with two darker framed white patches on each side and a transverse dusky line anteriorly in a median white area (Figs. 239, 240); venter light brown with white square. Carapace glossy with posterior horns pointed and two small median tubercles (Figs. 237, 238). Abdomen with small, pointed humps (Figs. 239, 240). Total length 10.5 mm. Carapace 4.7 mm long, 4.6 wide in thoracic region, 2.3 wide at lateral eyes. First femur 4.3 mm, patella and tibia 6.9, metatarsus 4.6, tarsus 1.4. Second patella and tibia 5.0 mm, third 2.7, fourth 4.7. Length of first patella and tibia 1.5 times carapace width.

Males are not known.

*Diagnosis.* *Mastophora pesqueiro* is distinguished by the conical horns on the smooth carapace (Figs. 237, 238), the four white marks on the abdomen, and the distinctly shaped humps (Figs. 239, 240). The epigynum has a median bulge on its posterior face (Figs. 241–243).

*Distribution.* Known only from the type locality (Map 3D).

*Specimens Examined.* No other specimens have been found.

### *Mastophora piras* new species Figures 244–250; Map 3D

*Holotype.* Female holotype from Emas, Pirassunga, Est. São Paulo, Brazil, 2 Nov. 1952 (Pietracatelli, Werner, and Dionisio), in MZSP, 4339. The specific name is an arbitrary combination of letters.

*Description.* Female holotype. Carapace dark brown. Chelicerae light brown. Labium, endites, sternum light brown. Coxae and distal leg articles brown with indistinct darker blotches. Abdomen anterior black enclosing some white anterior loops, posterior white (Figs. 246, 247); venter with indistinct white square on gray-brown. Carapace heavily sclerotized, shiny, with sides thinner with a punctuate pattern of tiny tubercles. Abdomen triangular heart-shaped with lateral bulges and distinct small humps (Figs. 246, 247). Total length 13.8 mm. Carapace 6.5 mm long, 5.9 wide in thoracic region, 3.3 wide at lateral eyes. First femur 5.3 mm, patella and tibia 7.7, metatarsus 4.8, tarsus 1.6. Second patella and tibia 5.5 mm, third 3.3, fourth 4.8. Length of first patella and tibia 1.2 times width of carapace.

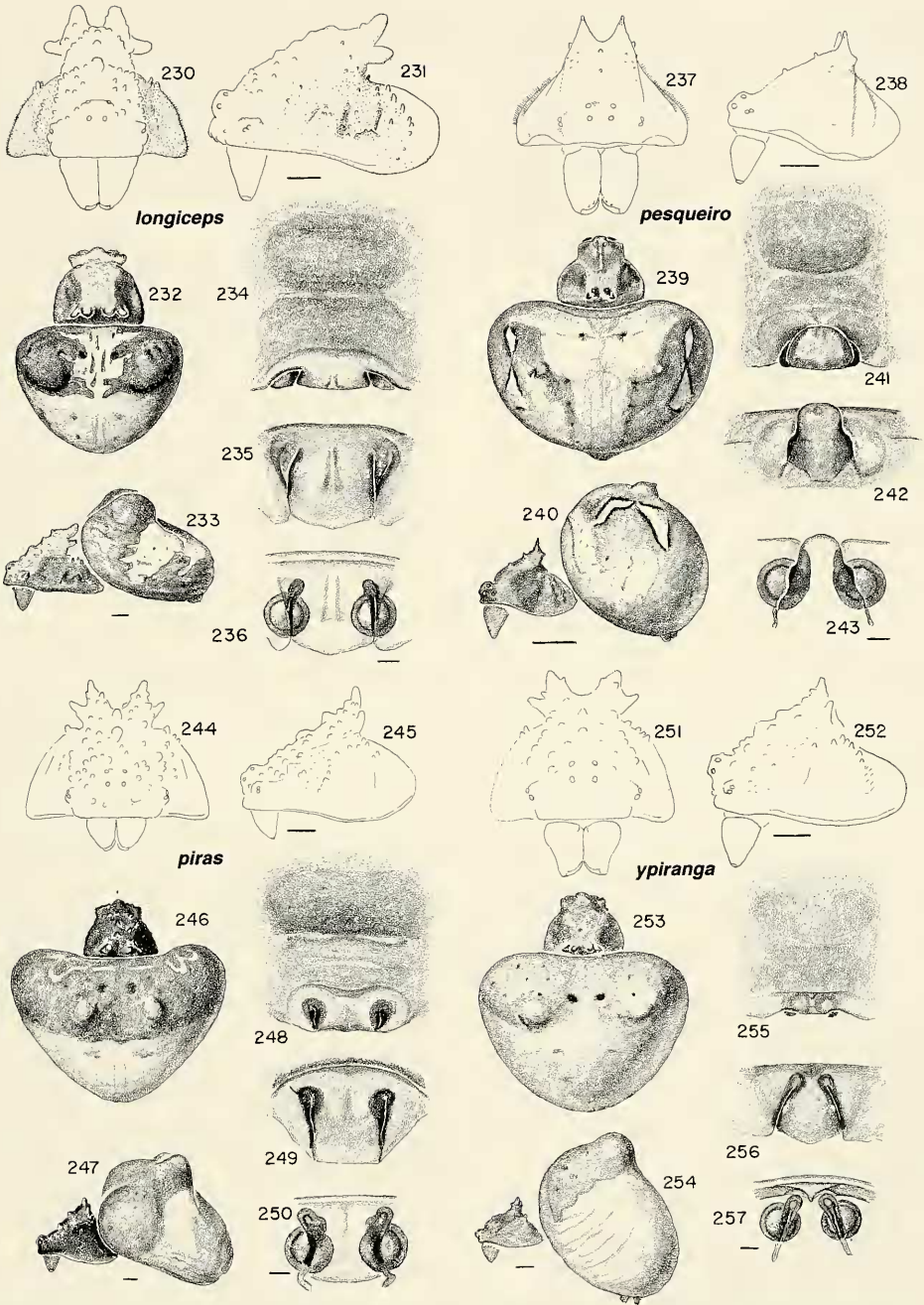
Males are not known.

*Variation.* Total length of females 13.0–13.8 mm. The paratype has some long, white setae on sides of carapace, clypeus,

---

Figures 230–236. *Mastophora longiceps* Mello-Leitão, female. 230, 231, carapace and chelicerae. 230, frontal. 231, lateral. 232, 233, carapace and abdomen. 232, dorsal. 233, lateral. 234–236, epigynum. 234, ventral. 235, posterior. 236, posterior, cleared.

Figures 237–243. *M. pesqueiro* new species, female. 237, 238, carapace and chelicerae. 237, frontal. 238, lateral. 239, 240, carapace and abdomen. 239, dorsal. 240, lateral. 241–243, epigynum. 241, ventral. 242, posterior. 243, posterior, cleared.



*longiceps*

*pesqueiro*

*piras*

*ypiranga*

Figures 244–250. *M. piras* new species, female. 244, 245, carapace and chelicerae. 244, frontal. 245, lateral. 246, 247, carapace and abdomen. 246, dorsal. 247, lateral. 248–250, epigynum. 248, ventral. 249, posterior. 250, posterior, cleared.

Figures 251–257. *M. ypiranga* new species, female. 251, 252, carapace and chelicerae. 251, frontal. 252, lateral. 253, 254, carapace and abdomen. 253, dorsal. 254, lateral. 255–257, epigynum. 255, ventral. 256, posterior. 257, posterior, cleared.

Scale lines. 1.0 mm; genitalia, 0.1 mm.



legs, and anterior of abdomen; the abdomen is all dark, perhaps because of poor preservation. The illustrations were from the holotype.

*Diagnosis.* *Mastophora piras* is distinguished from *M. melloleitaoi* by the heart-shaped abdomen with small humps (Figs. 246, 247) and by the wider median area of the epigynum in posterior view (Fig. 249).

*Distribution.* Minas Gerais and São Paulo states of southern Brazil (Map 3D).

*Paratypes.* BRAZIL *Minas Gerais*: Governador Valadares, 14/15 Oct. 1981, 1 imm. (N. Sorkin, T. Spitzman, AMNH). *São Paulo*: São Bernardo, Nov. 1926, 1 ♀ (H. Bakkenist, MZSP 8069).

*Mastophora ypiranga* new species  
Figures 251–257; Map 3E

*Holotype.* Female holotype from Ypiranga, Cap. [city of São Paulo], Est. São Paulo, Brazil, 1898, in MZSP, 5791. The specific name is a noun in apposition after the locality.

*Description.* Female holotype. Carapace orange-brown. Chelicerae yellow-brown. Labium, endites, sternum light brown. Coxae and distal leg articles light brown. Abdomen anterior black, posterior white (Figs. 253, 254); venter grayish white with white square. Carapace with low tubercles, with some short white setae on sides (Figs. 251, 252). First femur with S-shaped curvature. Abdomen with two humps (Figs. 253, 254). Total length 12.7 mm. Carapace 4.7 mm long, 4.2 wide in thoracic region, 2.7 wide at lateral eyes. First femur 3.7 mm, patella and tibia 5.4, metatarsus 3.3, tarsus 1.1. Second patella and tibia 3.8 mm, third 2.2, fourth 3.6. Length of first patella and tibia 1.2 times width of carapace.

Males are not known

*Variation.* Total length of females 9.7–

12.7 mm. The illustrations were made from the holotype.

*Diagnosis.* *Mastophora ypiranga* differs from *M. pickeli* and *M. melloleitaoi* by the shape of the abdomen (Figs. 253, 254) and by the narrower, almost triangular median plate of the epigynum and the atria approaching each other (Figs. 256, 257). Other differences are that the carapace appears less swollen when viewed from anterior, the anterior median eyes are directed forward, and the horns are erect with the tips pointing dorsally (Fig. 252). The anterior of the abdomen, which overhangs the carapace, is white.

*Distribution.* Minas Gerais to Santa Catarina states of southern Brazil (Map 3E).

*Paratypes.* BRAZIL *Minas Gerais*: Vicosia, 1931, 1 ♀ (E. J. Hambleton, AMNH). *São Paulo*: São Paulo, July 1928, 1 ♀ (R. Cassalo, IBSP 4530). *Santa Catarina*: June 1919, 1 ♀ (Luederwaldt, MZSP 8067).

*Mastophora yacare* new species  
Figures 258–264; Map 3E

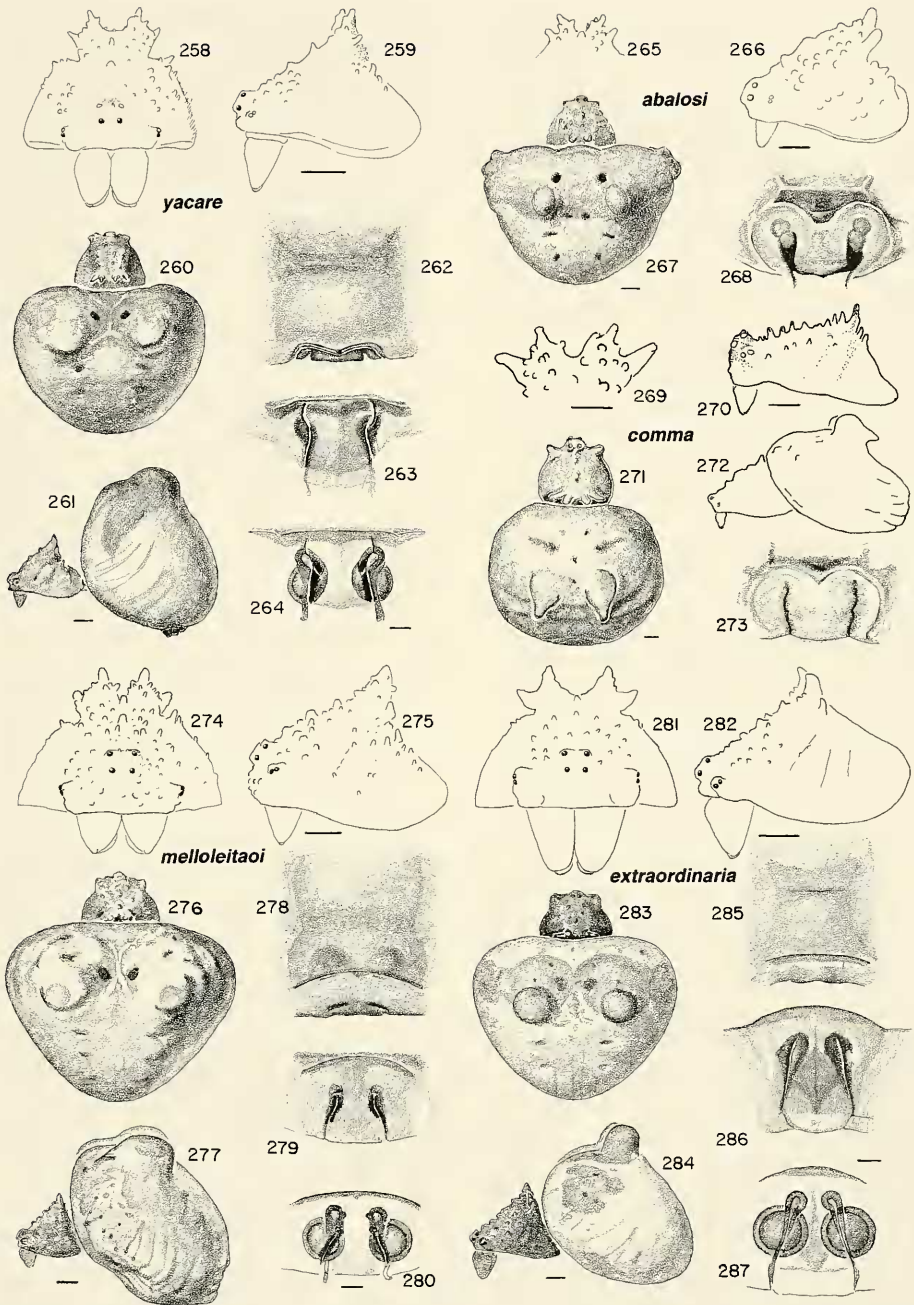
*Holotype.* Female holotype from Rincori del Yacaré, Artigas, Uruguay, 20 Jan. 1957, in FCMU. The specific name is a noun in apposition after the locality.

*Description.* Female holotype. Carapace light brown. Chelicerae, labium, endites brown. Sternum orange, underlain by white pigment. Legs brown, femora lightest. Abdomen black over humps, whitish posteriorly (Figs. 260, 261); venter light brown with white square containing two rows of three black spots; spinnerets dark brown. Abdomen with a pair of wide, dorsal humps (Figs. 260, 261). Total length 11.5 mm. Carapace 4.1 mm long, 4.0 wide in thoracic region, 2.6 wide behind posterior lateral eyes. First femur 3.5 mm, patella and tibia 5.1, metatarsus 3.5, tarsus 1.1. Second patella and tibia 3.8 mm, third

Figures 258–264. *Mastophora yacare* new species, female. 258, 259, carapace and chelicerae. 258, frontal. 259, lateral. 260, 261, carapace and abdomen. 260, dorsal. 261, lateral. 262–264, epigynum. 262, ventral. 263, posterior. 264, posterior, cleared.

Figures 265–268. *M. abalosi* Urtubey and Báez, female, after authors. 265, horns of carapace, frontal. 266, carapace and chelicerae, lateral. 267, carapace and abdomen, dorsal. 268, epigynum, posterior.

Figures 269–273. *M. comma* Báez and Urtubey, female, after authors. 269, horns of carapace. 270, carapace and chelicerae, lateral. 271, 272, carapace and abdomen. 271, dorsal. 272, lateral. 273, epigynum, posterior.



Figures 274–280. *M. melloleitai* Canals, female. 274, 275, carapace and chelicerae. 274, frontal. 275, lateral. 276, 277, carapace and abdomen. 276, dorsal. 277, lateral. 278–280, epigynum. 278, ventral. 279, posterior. 280, posterior, cleared.

Figures 281–287. *M. extraordinaria* Holmberg, female. 281, 282, carapace and chelicerae. 281, frontal. 282, lateral. 283, 284, carapace and abdomen. 283, dorsal. 284, lateral. 285–287, epigynum. 285, ventral. 286, posterior. 287, posterior, cleared.

Scale lines. 1.0 mm; genitalia, 0.1 mm.

2.0, fourth 3.3. Length of first patella and tibia 1.3 times width of carapace.

Males are not known.

*Diagnosis.* *Mastophora yacare* is distinguished from *M. melloleitaoi* by its epigynum and the atria, which separate and face sideways (Fig. 264).

*Distribution.* Known only from the type locality (Map 3E).

*Specimens Examined.* No other specimens have been found.

***Mastophora abalosi* Urtubey and Báez**  
Figures 265–268, 458; Map 3E

*Mastophora abalosi* Urtubey and Báez, 1983: 3, figs. 1–11, ♀. Female holotype and seven paratypes from the city of Santiago del Estero, Argentina, in the Inst. Animales Venenosos, Santiago del Estero, unavailable. Platnick, 1989: 340. Platnick, 2001.

*Description.* Female (after Urtubey and Báez, 1983). Carapace brown. Chelicerae yellowish. Labium, endites yellow-white. Sternum spotted orange-yellow. Sternum dark orange. Legs yellowish. Abdomen anterior clear yellow followed by dark band that covers humps (Fig. 267), posteriorly pale yellow; venter with light yellow. Carapace with numerous tubercles, setae only on sides; tubercles with light tips. Abdomen with humps (Fig. 267). Total length 12.5 mm. Carapace 5.6 mm long, 5.4 wide in thoracic region. First femur 4.8 mm, patella and tibia 6.8, metatarsus 5.1, tarsus 1.3. Second patella and tibia 5.2 mm, third 2.6, fourth 4.8. Length of first patella and tibia 1.3 times width of carapace.

Males are not known.

*Diagnosis.* *Mastophora abalosi* is distinguished from *M. extraordinaria* by some morphological characters (Urtubey and Báez, 1983). The posterior of the epigynum was illustrated (Fig. 268) and shows the atria slightly to the lateral of the slits.

The egg sac has flaps (Fig. 458).

*Distribution.* Santiago del Estero in northern Argentina (Map 3E).

*Specimens Examined.* No specimens were available.

***Mastophora comma* Báez and Urtubey**  
Figures 269–273, 459; Map 3E

*Mastophora comma* Báez and Urtubey, 1985: 3, figs. 1–9, ♀. Female holotype from the city of Santiago del Estero, Argentina, and seven paratypes in the Instituto de Animales Venenosos, Santiago del Estero, unavailable. Platnick, 1989: 340. Platnick, 2001.

*Description.* Female (after Báez and Urtubey, 1985). Carapace brown. Chelicerae yellow. Sternum orange. Legs orange-yellow. Abdomen dusky yellow covered with many tiny maroon spots with white setae, spotted with brown spots and a few darker maroon spots, and posteriorly with a few transverse bands (Fig. 271); venter yellow, spinnerets maroon. Intense yellow area between epigastric groove and spinnerets, with a few small maroon spots. Carapace with tubercles (Figs. 269, 270). Abdomen with a pair of dorsal humps tipped by nipples (Figs. 271, 272). Total length 12.0 mm. Carapace 3.7 mm long, 4.8 wide in thoracic region. First femur 3.9 mm, patella and tibia 6.4, metatarsus 5.0, tarsus 1.2. Second patella and tibia 4.6 mm, third 2.4, fourth 3.9. Length of first patella and tibia 1.3 times width of carapace.

Males are not known.

*Diagnosis.* This species differs from others by the unusual structure of the abdominal humps (Fig. 272) and by the two parallel slits on the posterior face of the epigynum (Fig. 273).

The egg sac lacks flaps and has a short stalk (Fig. 459).

*Distribution.* Santiago del Estero in northern Argentina (Map 3E).

*Specimens Examined.* No specimens of this species were available.

***Mastophora melloleitaoi* Canals**  
Figures 274–280; Map 3E

*Mastophora Mello-Leitãoi* Canals, 1931: 20, figs. 1–4, pl. 2, fig. 4, ♀. Female holotype, from Rosas, Prov. Buenos Aires, Argentina, in MACN, examined.

*Mastophora mello-leitãoi*.—Mello-Leitão, 1931, 73: figs. 5, 17, ♀.

*Mastophora mello-leitaoiae*.—Roewer, 1942: 900.

*Glyptocranium melloleitaoi*.—Bonnet, 1957: 1995.

*Mastophora melloleitaoi*.—Platnick, 2001.



*Note.* Roewer's (1942) spelling appears to be an error.

*Description.* Female from Balcarce. Carapace light brown, not shiny. Chelicerae, endites, labium light brown. Sternum light brown. Legs brown. Abdomen light brown, anterior gray. Near midline anteriorly a light V-shaped mark, followed by a light upside-down V. Carapace bald, except for some setae posteriorly. Abdomen humps wide (Figs. 276, 277). Total length 13.0 mm. Carapace 5.5 mm long, 4.8 wide in thoracic region, 3.2 wide at lateral eyes. First femur 4.2 mm, patella and tibia 6.3, metatarsus 4.2, tarsus 1.3. Second patella and tibia 4.5 mm, third 2.7, fourth 4.2. Length of first patella and tibia 1.3 times width of carapace.

Males are not known.

*Variation.* Total length of females 9.0–12.8 mm. The total length of the holotype is 12.8 mm, carapace 4.6 mm wide, patella and tibia 5.8. Humps may have black caps. The illustrations (Figs. 274–278) were made from a female from Balcarce; Figures 279 and 280 are from the holotype.

*Diagnosis.* The female differs from *M. extraordinaria* in that the carapace is not shiny (Fig. 274), in having the anterior of the abdomen dark (Figs. 276, 277), and in having the slits on the posterior of the epigynum almost parallel (Fig. 279). *Mastophora melloleitai* also lacks the dark median dorsal area on the posterior of the epigynum present in *M. extraordinaria* (Fig. 286). If cleared, each atrium shows a small median lobe (Fig. 280) not present in other species.

*Distribution.* From Paraná State, southern Brazil, to Buenos Aires Province, Argentina (Map 3E).

*Specimens Examined.* BRAZIL *Rio de Janeiro:* Vasouras, Fazenda de São Sebastião, March 1871, 1♀ (B. P. Mann, MCZ). *Paraná:* Curitiba, 21 Jan. 1965, 1 imm. (C. Valle, MZSP 4326). *Rio Grande do Sul:* Rodeio Bonito, Bagé, 10 Feb. 1967, 1♀ (C. de Oliveira, MCN 473); Santa Maria, 9 May 1973, 1♀ (D. Link, MCN 01659). ARGENTINA *Córdoba:* Cruz Alta, 15 Aug. 1948, 1♀ (J. P. Duret, MACN). *Buenos Aires:* Ascensión, 1♀ (B. Gerschman, MACN); Balcarce, 16 Feb. 1950, 1♀ (Cuccioli, MACN); Burzaco,

1♀ (F. C. S., MACN); San Isidro, 19 Apr. 1949, 1♀ (N. Konmillev, MACN); Zelaya, 2 imm. (J. Pereyra, MACN 523).

### *Mastophora extraordinaria* Holmberg

Figures 281–287, 460; Map 3F

*Mastophora extraordinaria* Holmberg, 1876: 113. Female from Buenos Aires, Argentina, lost. Brèthes, 1909: 163, figs. 1, 2, ♀, egg sacs. Canals, 1931: 17, figs. 1–5, pl. 1, fig. 1. Mello-Leitão, 1931: 70, figs. 7, 19. Roewer, 1942: 900. Platnick, 2001.

*Glyptocranium extraordinaria:*—Bonnet, 1957: 1997. *?Mastophora cinerea* Mello-Leitão, 1943: 105, fig. 4, imm. Immature holotype from Córdoba, Argentina, in MLP, examined. DOUBTFUL NEW SYNONYMY.

*Mastophora intermedia* Mello-Leitão, 1945: 240, figs. 14–17, ♀. One female holotype from Pindapoy, Misiones Prov., Argentina, in MLP, examined. Brigoli, 1983: 274. NEW SYNONYMY.

*Note.* Holmberg described the size of the prominences of the abdomen and the two brown spots.

*Mastophora cinerea* is a light-colored immature with slightly elongate humps. Its placement is doubtful. (Do immature *M. extraordinaria* have longer humps?)

*Mastophora intermedia* has humps rounded, as wide as long, and has the same internal genitalia as does *M. extraordinaria*. The differences are a slight median notch of the posterior rim of the epigynum in ventral view, and absence of the median dark area posterior in the epigynum (Fig. 286).

*Description.* Female from Chascomús. Carapace dark brown with narrow white rim. Legs brown, slightly ringed. Abdomen white with a pair of dorsal black patches (Fig. 283). Carapace shiny on tips with low tubercles and three grooves on each side. Abdomen with few setae on sides with one pair of humps; venter with white square. Total length 12 mm. Carapace 4.8 mm long, 4.6 wide in thoracic region, 2.8 wide at posterior lateral eyes. First femur 3.9 mm, patella and tibia 5.5, metatarsus 3.5, tarsus 1.2. Second patella and tibia 4.5 mm, third 2.7, fourth 4.1. Length of first patella and tibia 1.1 times width of carapace.

Males are not known.

*Variation.* The epigynum is variable in width and the abdominal humps may be wider or higher. Total length of females 9.5–14 mm. The illustrations were made from the female from Chascomús.

*Diagnosis.* Compared with *M. melloleitaoi*, the carapace has low, flat tubercles; the horns of the carapace are relatively smooth and shiny (Figs. 281, 282); and the bulge bearing the median eyes is indistinct. The anterior of the abdomen is usually white (Fig. 284). The median plate of the epigynum is flat dorsally, sclerotized, and darker than ventrally (above on Fig. 286); it is raised in the middle in *M. melloleitaoi*. The atria approach each other (Fig. 287), unlike those of *M. melloleitaoi* (Fig. 280).

*Natural History.* The egg sac is drop-shaped, 11 mm wide, almost the size of the female abdomen (Fig. 460). A female from Gonzáles Catán was found on a citrus tree. An immature in Uruguay was collected at night "from regular web."

*Distribution.* From Rio Grande do Sul State, southern Brazil, to Buenos Aires Province, west to Chaco and Córdoba provinces, Argentina (Map 3F).

*Specimens Examined.* BRAZIL *Rio Grande de Sul:* Canela, 12 Feb. 1966, 1♀ (A. Lise, MCN 0119); Garibaldi, 30 Oct. 1974, 1♀ (O. Simonaggio, MCN 2381). URUGUAY Montevideo, 1♀ (J. Canosa, MACN 4182); 1♀ (E. Cordero, MNRJ 14011); Puntas Arroyo Laureles, Tacuarembó, 1 imm. (FCMU 293); Treinta y Tres, 20 Aug. 1971, 1♀ (FCMU 295). ARGENTINA *Chaco:* Sáenz Peña, Sept. 1933, 1♀ (B. Ohneiser, MACN 31331). *Córdoba:* Córdoba, 2♀ (M. J. Viana, AMNH, MACN 1106); Calamuchita, Dec. 1940, 4♀ (J. M. Viana, MACN 1005); Dec. 1941, 2♀ (J. M. Viana, MACN 1106); Agus do Oro, Mar. 1940, 1 imm. (J. A. De Carlo). *Buenos Aires:* Buenos Aires, 1♀ (Selys, MNHN 23388); Chascomús, Oct. 1934, 1♀ (I. Dor, MACN 35983); Cap. Federal, 1 imm. (E. Pizarro, MACN 12782); Florencio Varela, 1 May 1949, 1♀ (O. de Ferrarini, MLP 13549); Gonzáles Catán, 6 June 1949, 1♀ (Touson); Hurlingham, Jan. 1954, 1♀ (Giai, MACN 4359); La Plata, 1♀ (M. Birabén, MLP 16178); 1♀ (M. Birabén, BMNH); Moreno, Feb. 1939, 1♀ (Schiapelli, Gerschman, MACN); 14 Nov. 1943, 1♀ (S. M. Doello Jurado, MACN 1361); Rosas, 1930, 1♀ (J. B. Daguerrre, MACN 4185).

*Mastophora leucabulba* (Gertsch),  
new combination

Figures 288–295; Map 2F

*Agatostichus leucabulba* Gertsch, 1955: 250; figs. 34, 35, 40. ♀. Female holotype from Harlingen, Texas, in AMNH, destroyed.

*Agathostichus leucabulba*:—Brignoli, 1983: 255.

*Agathostichus leucabulbus*:—Platnick, 2001.

*Note.* Platnick's change of spelling is not required.

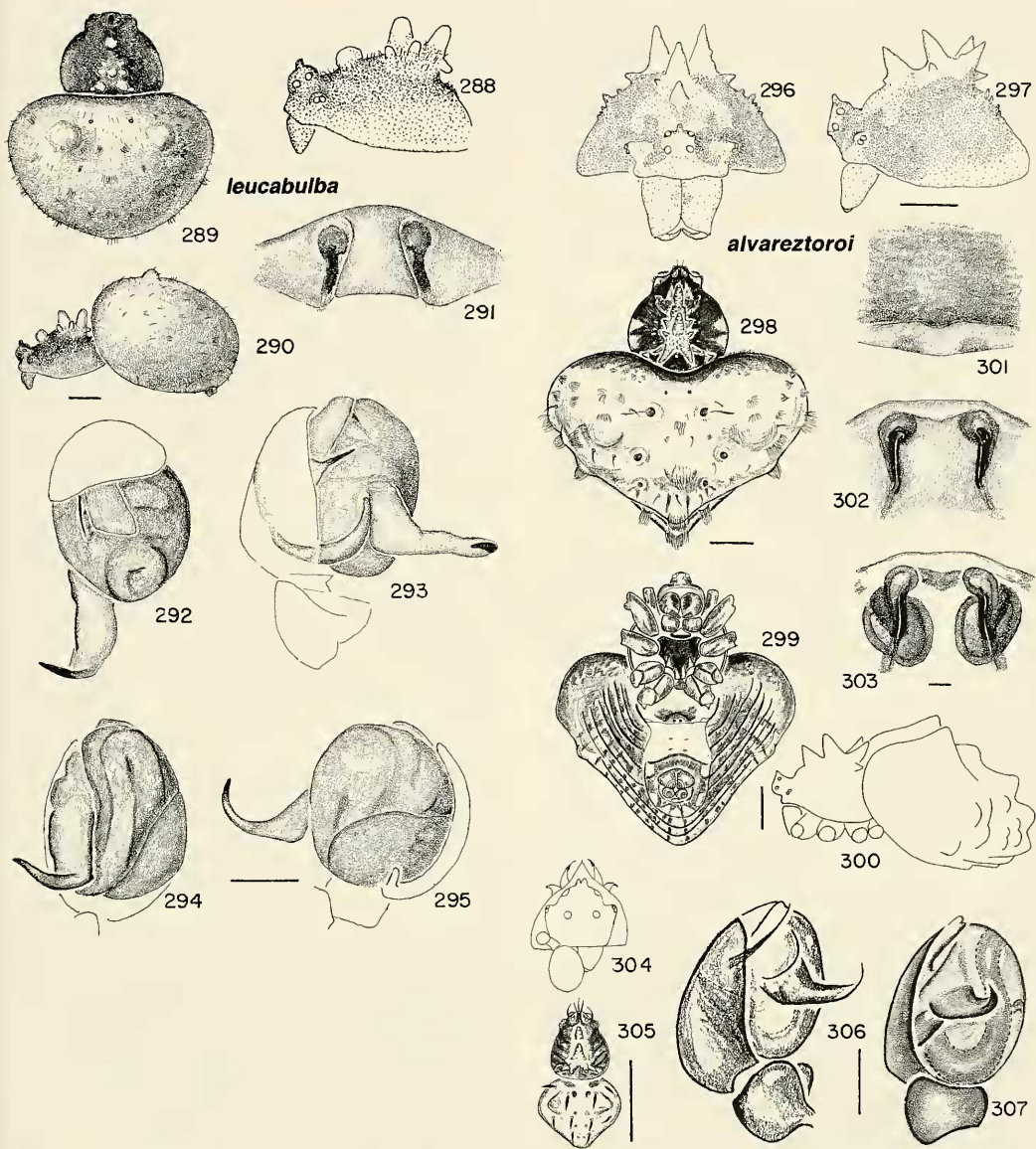
*Description.* Female (after Gertsch, 1955). Carapace reddish brown except for yellow rim and orange median patch enclosing tubercles; tubercles tipped white. Chelicerae brownish at base. Labium, endites yellowish. Sternum yellowish. Coxae yellowish and distal leg articles yellowish to light brown with faint brown markings on first leg. Abdomen yellowish to whitish above with dusky flecks, black around the base (Fig. 289). Carapace with woolly setae, one large bulb behind median eyes, a large median bulb flanked by a pair of small bulbs on the side, behind bifid horns, sides with dark warts and cephalic area coarsely roughened, hidden by mat of woolly hairs. Lateral eyes on connate tubercles, median eyes on large elevated tubercle at the posterior edge of which is a small tubercle. Abdomen with long humps. Total length 6.7 mm. Carapace 2.8 mm long, 2.9 wide in thoracic region. First femur 3.6 mm, patella and tibia 4.9, metatarsus 3.6, tarsus 1.0. Second patella and tibia 3.4 mm, third 1.9, fourth 2.6. Length of first patella and tibia 1.7 times width of carapace.

*Diagnosis.* *Mastophora leucabulba* is distinguished by the enlarged tubercle between the median eyes (Figs. 288, 290) and the large blunt tubercles and dark coloration of the carapace (Figs. 289, 290).

Doubtful males, considered and labeled *M. cornigera* by W. Ivie, and listed under that species by Gertsch, may be this species (Figs. 292–295).

*Distribution.* Southern Texas to Honduras (Map 2F).

*Specimens Examined.* TEXAS *Duval Co.:* San Di-



Figures 288–295. *Mastophora leucabulba* Gertsch. 288–291, female, after Gertsch. 288, carapace and chelicerae, lateral. 289, 290, carapace and abdomen. 289, dorsal. 290, lateral. 291, epigynum, posterior. 292–295, left palpus of presumed male. 292, apical. 293, mesal. 294, ventral. 295, ectal.

Figures 296–307. *M. alvareztoroi* Ibarra and Jiménez new species. 296–303, female. 296, 297, carapace and chelicerae. 296, frontal. 297, lateral. 298–300, carapace and abdomen. 298, dorsal. 299, ventral. 300, lateral. 301–303, epigynum. 301, ventral. 302, posterior. 303, posterior, cleared. 304–307, male. 304, carapace, chelicera and right palpus. 305, dorsal. 306–307, left palpus. 306, mesal. 307, ventral.

Scale lines. 1.0 mm; genitalia, 0.1 mm.



ego, 29 Apr. 1895, 2♂, imm. doubtful determination (USNM). *Wilson Co.*: Floresville, 29 Apr. 1895, 1 imm., 4♂, doubtful determination (AMNH). MEXICO *Tamaulipas*: 64 km S Linares, imm., 1.9 mm long (Gertsch, 1955, AMNH, destroyed, not examined). HONDURAS E of Tela Beach, 6 July 1929, imm. (A. M. Chickering, MCZ).

*Mastophora alvareztoroi*  
Ibarra and Jiménez new species

Plate 1; Figures 296–307; Map 2F

*Holotype*. Female holotype from Rancho Alejandria, Municipio Estación Juárez, Chiapas, Mexico, 25 Sept. 1975 (M. Alvarez del Toro), in MCZ. The species has been named after the collector, the late Miguel Alvarez del Toro, who dedicated his life to the study and protection of the Chiapas fauna and is the author of a book on Chiapas spiders (Alvarez del Toro, 1992).

*Agathostichus* sp. Alvarez del Toro, 1992: 173, fig. 121, ♀, photo.

*Description*. Female from Rosaria Iza-pa. Carapace horns white, sides dark brown with eyes, clypeus, and rim yellowish (Figs. 296–298). Chelicerae yellowish with a pair of dark patches. Labium, endites dark brown, distally light. Sternum dark brown. Coxae and distal leg articles yellowish; first femur with fine black ring and distally with ventral dark patch. Abdomen yellow, dark brown on anterior border, and brown on some hump tips (Fig. 298); venter light brown with white square; a dark brown patch on epigynal area, and no pigment in spinneret area. Carapace hirsute with cone-shaped white tubercles (Figs. 296, 297). Posterior median eyes 0.8 diameter of anterior medians, laterals 0.7. Anterior median eyes 1.7 diameters apart. Ocular trapezoid rectangular, slightly wider than long. Chelicerae with one anterior tooth and three posterior teeth. Abdomen heart-shaped, three pairs of dark spots dorsally and sparse black setae, hirsute with tufts on white setae on

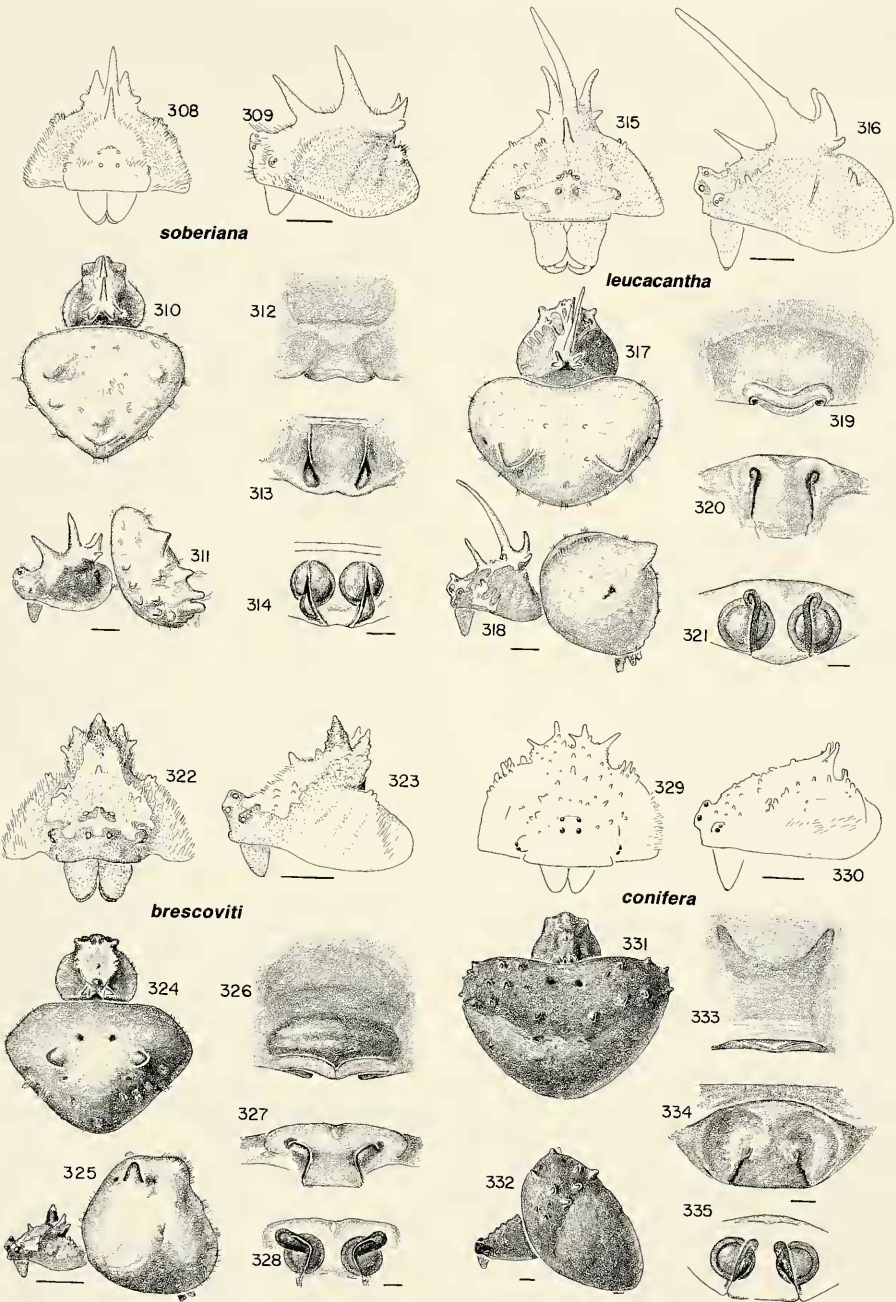
dorsum. A pair of dorsal humps, followed by a series of four median, conical humps and several smaller lateral humps on each side. Setae, also tufts of white setae on small circular and convex white areas, scattered on dorsum of abdomen, with scattered dark brown setae, especially on anterior half, also with a few feather-shaped symmetrically arranged dark brown setae (Fig. 298). Total length 8.9 mm. Carapace 3.4 mm long, 3.3 wide in thoracic region, 1.7 wide at lateral eyes. First femur 4.3 mm, patella and tibia 5.5, metatarsus 4.2, tarsus 1.1. Second patella and tibia 3.8 mm, third 2.3, fourth 3.5. Length of first patella and tibia 1.6 times width of carapace.

Male weakly sclerotized, perhaps just molted. Carapace reddish brown except for white median light patch enclosing white horns. Chelicerae dark yellow. Sternum dark brown. Coxae, distal leg articles yellowish. Abdomen whitish. Carapace elevated behind, second midline tubercle slightly longer than first, lateral horns about half length of median horns, separation between median and lateral horns greater than width of laterals at base; each transverse horn with translucent seta on tip; carapace with woolly white setae. Chelicerae with three posterior median teeth and one posterior tooth. Abdomen with two dorsal paired humps; four anterior, four median, and two posterior feather-shaped setae (Fig. 305). Total length 1.7 mm. Carapace 0.8 mm long, 0.8 wide in thoracic region. First femur 1.1 mm, patella and tibia 1.1, metatarsus 1.1, tarsus 1.03. Second patella and tibia 0.8 mm, third 0.4, fourth 0.6. Length of first patella and tibia 1.4 times width of carapace.

*Note*. Males and females were matched

Figures 308–314. *Mastophora soberiana* new species, female. 308, 309, carapace and chelicerae. 308, frontal. 309, lateral. 310, 311, carapace and abdomen. 310, dorsal. 311, lateral. 312–314, epigynum. 312, ventral. 313, posterior. 314, posterior, cleared.

Figures 315–321. *Mastophora leucacantha* (Simon), female. 315, 316, carapace and chelicerae. 315, frontal. 316, lateral. 317, 318, carapace and abdomen. 317, dorsal. 318, lateral. 319–321, epigynum. 319, ventral. 320, posterior. 321, posterior, cleared.



Figures 322-328. *M. brescoviti* new species, female. 322, 323, carapace and chelicerae. 322, frontal. 323, lateral. 324, 325, carapace and abdomen. 324, dorsal. 325, lateral. 326-328, epigynum. 326, ventral. 327, posterior. 328, posterior, cleared.

Figures 329-335. *M. conifera* (Holmberg), female. 329, 330, carapace and chelicerae. 329, frontal. 330, lateral. 331, 332, carapace and abdomen. 331, dorsal. 332 lateral. 333-335, epigynum. 333, ventral. 334, posterior. 335, posterior, cleared.

Scale lines. 1.0 mm; genitalia, 0.1 mm.

because they were collected in the same area in Chiapas, have similar cone-shaped carapace tubercles and horns, and both sexes have feather-shaped setae.

*Variation.* Living females look all woolly. Total length of females 8.6–8.9 mm, carapace 3.3–4.0 mm wide. An immature, 4.3 mm total length, is similar to the adult female in relative proportions, horns, and pointed abdomen, but has fewer abdominal humps (only the pair and the four in midline). As in males of the genus, a row of long setae is present on the anterior of the first and second metatarsi and tarsi. The illustrations (Figs. 298–300) were made from the paratype collected with the holotype.

*Diagnosis.* *Mastophora alvareztoroi* is distinguished from *M. leucabulba* by the shape and humps of abdomen (Figs. 298–300), by the cone-shaped tubercles on the carapace (Figs. 296, 297), by having feather-shaped setae (Figs. 298, 305), and by the epigynum having atria bent toward each other (Figs. 302, 303).

*Natural History.* Some specimens came from coffee groves in Finca Irlanda and Rosario Izapa. The specimens were between 1 and 2 m above the ground. Mark Stowe (in correspondence) wrote that this fuzzy spider bears a strong resemblance to congregations of fuzzy scale insects in the same habitat in Texas.

*Distribution.* Southern Texas and Chiapas, Mexico (Map 2F).

*Paratypes.* MEXICO *Chiapas:* Rancho Alejandria, Municipio Estación Juárez, 25 Sept. 1975, 1♀ (*M. Alvarez del Toro*, MLJ); Finca Irlanda, 870 m, 15°10'N, 92°21'W, 65 km NNW of Tapachula, 12 Aug. 1987, 1♂ (*G. Ibarra*, *A. García*, *M. Moreno*, ECOTAR); Rosario Izapa, Municipio Tuxtla Chico, 430 m, 14°59'N, 92°09'W, 18 km ENE of Tapachula, 25 Aug. 1995, 1♀ (*A. Ventura*, ECOTAR).

*Specimens Examined.* TEXAS *Hidalgo Co.:* Santa Ana Natl. Wildlife Refuge, 18 Dec. 1983, 1♀ (*M. K. Stowe* 112, MKS). MEXICO *Chiapas:* Finca Hamburgo, ca. 15°10'N, 92°19'W, 950 m, Municipio de Tapachula, 16 Nov. 1994, 1 imm. (*G. Ibarra*, ECOTAR).

### *Mastophora soberiana* new species Figures 308–314; Map 2F

*Holotype.* Female holotype from Pipeline Road, Canal Zone [in Soberiana National Park, Panama], 26 July 1976 (*Y. Lubin*, *G. G. Montgomery*), in MCZ. The specific name is a noun in apposition after the locality.

*Description.* Female holotype (in poor physical condition). Carapace yellowish, sides of thorax dark brown, a wide, light rim and tubercles with white pigment (Figs. 308, 309). Chelicerae, labium, endites yellowish. Sternum brown. Coxae, distal leg articles yellowish. Abdomen white dorsally (Fig. 310), white ventrally, except for yellowish genital area and spinnerets. Carapace with spine-shaped tubercles and white setae (Figs. 308, 309). Abdomen with three median humps and numerous small lateral humps, with tufts of white setae (Figs. 310, 311). Total length 8.3 mm. Carapace 3.7 mm long, 3.4 wide in thoracic region, 1.8 wide behind posterior lateral eyes. First femur 4.7 mm, patella and tibia 5.8, tarsi lost. Second patella and tibia 4.2 mm, third 2.3, fourth 3.5. Length of first patella and tibia 1.7 times width of carapace.

Males are not known.

*Diagnosis.* This species is distinguished from *M. alvareztoroi* by the longer carapace tubercles and by having the atria of the epigynum located dorsally (Fig. 314).

*Distribution.* Panama (Map 2F).

*Specimens Examined.* No other specimens have been found.

### *Mastophora leucacantha* (Simon), new combination Figures 315–321; Map 3G

*Agatostichus leucacantha* Simon, 1895: 885, fig. 947, carapace. Immature holotype from Rio Salobro, Bahia, Brazil, in MNHN, 8486, examined. Mello-Leitão, 1931: 67. Gertsch, 1955: 250.

*Agathostichus leucacantha:*—Simon, 1897: 473. Roewer, 1942: 900.

*Agathostichus leucacanthus:*—Bonnet, 1955: 182. Platnick, 2001.

*Note.* In his publications, Simon (1895, 1897) did not include the female symbol



as he did for other species, indicating that the specimen was immature. Roewer (1942) and Gertsch (1955) cited it as female.

Platnick (2001) considered the name of Simon (1895) to be a *nomen nudum* because the description was shared by the genus and species. But this is valid for 19th century descriptions (*International Code of Zoological Nomenclature*, art. 12.2.6 [International Commission on Zoological Nomenclature, 1999]).

*Description.* Female from the Organ Mountains. Carapace yellowish white with white marks and median white tubercles, brown triangle on posterior slope; anterior point of triangle dark between forked tubercles (Fig. 315). Chelicerae yellowish. Labium dark brown, endites yellowish. Sternum dark brown. Coxae and distal leg articles yellowish white. Abdomen yellowish white with a small black mark on each side (Fig. 317); venter yellowish white with white square surrounded by a gray line; dorsum and sides with indistinct gray marks. Carapace with woolly setae and long tubercles (Figs. 315–317). Median eyes on a swelling, each lateral pair on a swelling. Median ocular trapezoid almost square. Chelicerae with three anterior teeth, one posterior tooth. Legs with white setae. Abdomen with a pair of dorsal humps and tufts of white setae (Figs. 317, 318). Total length 8.3 mm. Carapace 3.7 mm long, 3.6 wide in thoracic region, 2.2 wide at lateral eyes. First femur 3.6 mm, patella and tibia 4.6, metatarsus 3.3, tarsus 1.0. Second patella and tibia 3.6 mm, third 2.1, fourth 3.2. Length of first patella and tibia 1.3 times width of carapace.

Males are not known.

*Variation.* The immature holotype, total length 4.0 mm, has carapace tubercles shorter and lacks some lateral ones; venter of abdomen with black square. The illustrations were made from the adult female from Organ Mountains. The tufts of setae on the abdomen were prominent on the female from Organ Mountains when first

examined (by the author in 1969), but have mostly been lost as result of handling.

*Diagnosis.* *Mastophora leucacantha* is distinguished by the long median horn that is almost as long as the carapace, and differs from *M. alvareztoroi* by having the abdomen rounded behind, whereas *M. alvareztoroi* has the abdomen lobed behind, and differs from *M. leucabulba* by having all tubercles behind the eyes and from *M. soberiana* by the shape of the epigynum (Fig. 320).

*Distribution.* Bahia to Rio de Janeiro states, Brazil (Map 3G).

*Specimens Examined.* Rio de Janeiro: Cachoeirinha, Montaigne Orgues [Serra Orgãos, Organ Mountains], 1902, 1♀ (E. R. Wagner, MNHN 26035).

### *Mastophora brescoviti* new species

Figures 322–328; Map 3G

*Holotype.* Female holotype from Jardim Botânico, Porto Alegre, Rio Grande do Sul, Brazil (A. D. Brescovit), in MCN no. 26135. The species has been named after the collector and arachnologist A. D. Brescovit.

*Description.* Female holotype. Carapace with symmetrical white lines on head region, sides of cephalic area dark brown, sides of thorax light brown with dark streaks and speckles, and many downy white setae (Figs. 322, 323). Chelicerae patchy brown. Labium, endites, sternum dark brown. Coxae light brown and distal leg articles yellowish with narrow brown rings. Abdomen light brown, darker anteriorly between humps and pedicel, darker patches on each side, humps darkest, with bunches and individual white setae (Fig. 324); venter light brown. Lateral eyes on bulges. Carapace with median tubercle longest. Abdomen dorsally with a pair of humps and a median swelling bearing white setae (Figs. 324, 325). Total length 9.2 mm. Carapace 3.7 mm long, 3.4 wide in thoracic region, 1.8 wide behind posterior lateral eyes. First femur 4.0 mm, patella and tibia 5.1, metatarsus 3.7, tarsus 1.2. Second patella and tibia 3.8 mm, third 2.3, fourth 3.3.

Males are not known.

*Diagnosis.* *Mastophora brescoviti* is distinguished by the long posterior, median tubercle, and unusual shape of the abdomen with a median swelling behind the humps (Figs. 324, 325). The posterior of the epigynum has a pair of diagonal swellings (Fig. 327) not present in other species.

*Distribution.* Only known from Porto Alegre, Brazil (Map 3G).

*Specimens Examined.* No other specimens have been found.

*Mastophora conifera* (Holmberg)  
Figures 329–335; Map 3G

*Heterocephala conifera* Holmberg, 1876: 143. Female from Boradero [Prov. Buenos Aires], Argentina, lost.

*Mastophora conifera*:—Canals, 1931: 18, figs. 1–5, pl. 1, fig. 2. Mello-Leitão, 1931: 71, figs. 4, 16. Roewer, 1942: 900. Platnick, 2001.

*Glyptocranium coniferum*:—Bonnet, 1957: 1996.

*Description.* Female from Tigre [in poor condition]. Carapace, sternum, legs orange-brown. Abdomen anteriorly black, posteriorly lighter gray, with some black streaks (Figs. 331, 332); venter black with a pair of white spots. Carapace with tips of horns thin, setae on sides of thoracic area (Figs. 329, 330). Anterior median eyes largest, laterals smallest. Abdomen with numerous dorsal tubercles (Figs. 331, 332). Total length 12.0 mm. Carapace 5.3 mm long, 4.6 wide in thoracic region, 2.8 wide at lateral eyes. First femur 4.3 mm, patella and tibia 5.3, metatarsus 3.8, tarsus broken. Second patella and tibia 4.3 mm, third 2.4, fourth 3.7. Length of first patella and tibia equals 1.2 times width of carapace.

Males are not known.

*Diagnosis.* *Mastophora conifera* is distinguished by the tubercular abdomen

(Figs. 331, 332) and by the epigynum, which in posterior view has a pair of depressions containing short, ventrally converging slits (Fig. 334).

*Distribution.* Santa Fé and Buenos Aires provinces, Argentina (Map 3G).

*Specimens Examined.* ARGENTINA Santa Fé: Colonia Macias, Nov. 1942, imm. shriveled (J. M. Viana, MACN). Buenos Aires: Tigre, 1902, 1♀, once dried up (J. Brèthes, MACN 5896).

*Mastophora corpulenta* (Banks)  
Figures 336–342, 461; Maps 2F, 4A

*Ordgarius corpulentus* Banks, 1898: 251, pl. 15, fig. 8. Female holotype from San José del Cabom Baja California, Mexico, in CAS, destroyed. Neotype here designated the holotype of *M. lenca*.

*Mastophora corpulenta*:—Roewer, 1942: 900. Platnick, 2001.

*Mastophora lenca* Gertsch, 1955: 247, figs. 28–30, 32, 33, ♀. Female holotype from Zamorano [Zambrano], Honduras, in AMNH, examined. Brignoli, 1983: 274. Platnick, 2001. NEW SYNONYMY.

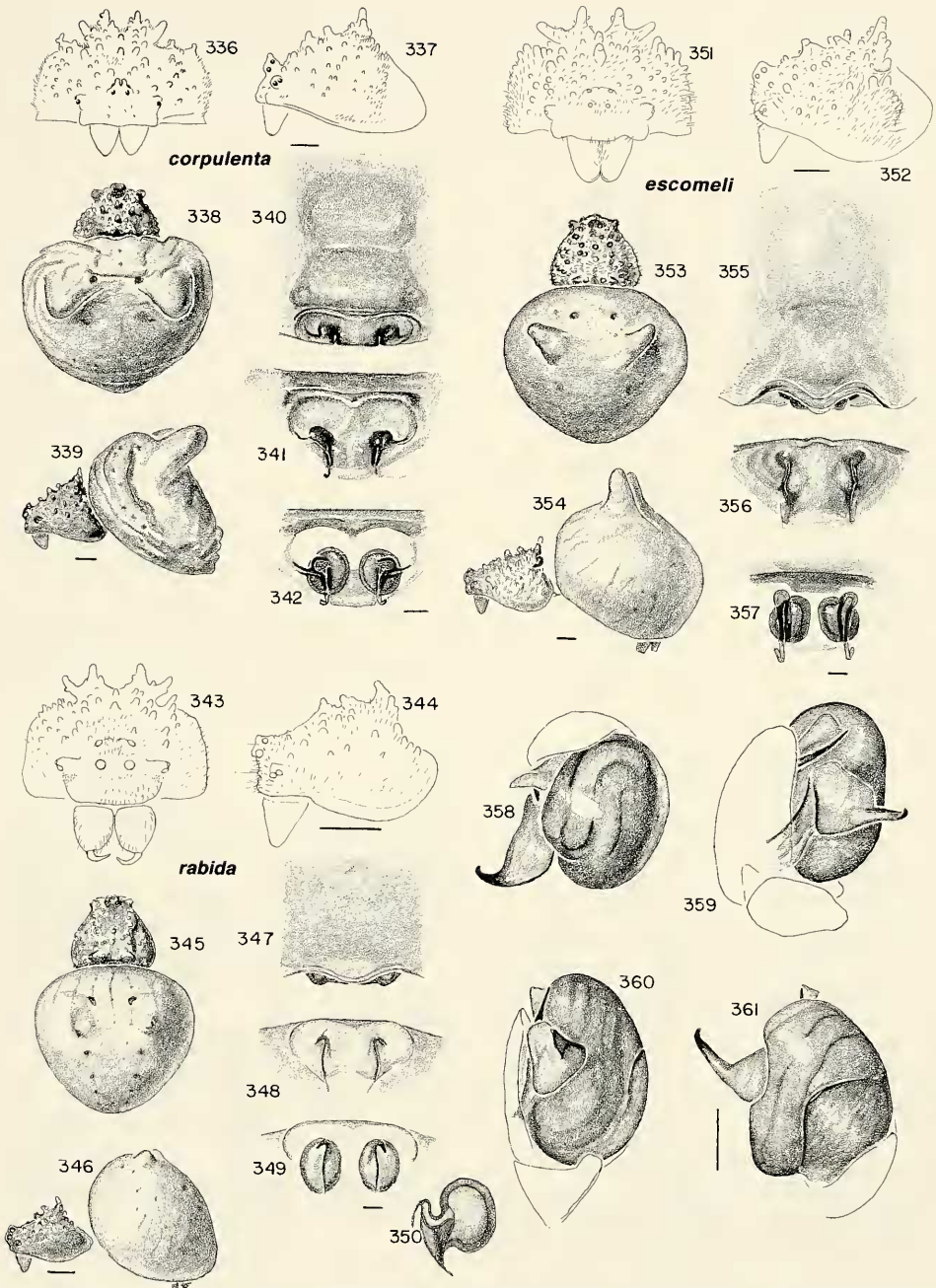
*Glyptocranium corpulentum*:—Bonnet, 1957: 1997.

*Note.* Banks (1898) described and pictured (fig. 8) elongated tubercles on the abdomen and lateral tubercles on the side of the carapace. The only North American or Central American species known to have both these characters is *M. lenca*. The type locality of *Ordgarius corpulentus* is uncertain, because, as Banks himself pointed out, the collection was handled by G. Marx before being turned over to Banks after Marx's death, and Marx locality labels are confused.

*Description.* Female holotype. Carapace dark brown, with short white setae not covering tubercles; tubercles with light tips (Figs. 336, 337). Sternum dark orange. Legs dark brown. Median eyes on bulge, lateral eyes on bulges. Abdomen gray, with long humps (Fig. 339); venter with white square. First tarsus with S-shaped curva-

Figures 336–342. *Mastophora corpulenta* (Banks), female. 336, 337, carapace and chelicerae. 336, frontal. 337, lateral. 338, 339, carapace and abdomen. 338, dorsal. 339, lateral. 340–342, epigynum. 340, ventral. 341, posterior. 342, posterior, cleared.

Figures 343–350. *M. rabida* new species, female. 343, 344, carapace and chelicerae. 343, frontal. 344, lateral. 345, 346, carapace and abdomen. 345, dorsal. 346, lateral. 347–350, epigynum. 347, ventral. 348, posterior. 349, posterior, cleared. 350, seminal receptacle, median.



Figures 351–361. *M. escomeli* new species. 351–357, female. 351, 352, carapace and chelicerae. 351, frontal. 352, lateral. 353, 354, carapace and abdomen. 353, dorsal. 354, lateral. 355–357, epigynum. 355, ventral. 356, posterior, cleared. 358–360, male left palpus, stained. 358, apical. 359, mesal. 360, ventral. 361, ectal.

Scale lines. 1.0 mm; genitalia, 0.1 mm.



ture. Total length 11.0 mm. Carapace 5.4 mm long, 5.2 wide in thoracic region, 2.8 wide behind posterior lateral eyes. First femur 4.7 mm, patella and tibia 7.6, metatarsus 5.4, tarsus 1.4. Second patella and tibia 4.8 mm, third 2.4, fourth 4.1.

Males are not known.

*Diagnosis.* *Mastophora corpulenta* is distinguished from *M. diablo* by the small dorsal knobs in the depression of the posterior of the epigynum (Fig. 341).

The egg sac is fig-shaped, lacks lateral flaps, and has a thick stalk (Fig. 461).

*Distribution.* Central America (Map 4A).

*Specimens Examined.* NICARAGUA León, Abangasca, 13 Dec. 1994, 1 subadult ♀ (J. M. Maes, MCZ).

### *Mastophora rabida* new species

Figures 343–350; Map 4A

*Holotype.* Female holotype and immature female paratype from Rábida Island, Galapagos Islands, Ecuador, 12 May 1981 (Y. D. Lubin, 319), in MCZ. The specific name is a noun in apposition after the locality.

*Note.* The female holotype is a penultimate instar, ready to molt. The exuvium is loose above the epigynum. The epigynum is mature but not sclerotized.

*Description.* Female holotype. Carapace dark orange. Chelicerae, labium, endites orange. Sternum orange with white pigment. Coxae and distal leg articles dark dusky orange. Abdomen white with some faint gray marks (Fig. 345); venter with white square. Carapace appearing downy, covered with tubercles; tubercles with light tips (Figs. 343, 344). Median eyes on bulge, lateral eyes on bulges. Abdomen slightly wider than long with small humps (Figs. 345, 346). Total length 7.7 mm. Car-

apace 3.1 mm long, 2.9 wide in thoracic region, 1.8 wide at lateral eyes. First femur 2.8 mm, patella and tibia 4.2, metatarsus 3.2, tarsus 1.0. Second patella and tibia 3.0 mm, third 1.7, fourth 2.8. Length of first patella and tibia 1.4 times width of carapace.

Males are not known.

*Diagnosis.* *Mastophora rabida* is distinguished by the ventral loops of the slits on the posterior of the epigynum (Figs. 348, 349).

*Natural History.* From Y. Lubin (personal correspondence): “#319. nocturnal araneid on orb web. During day sits on twigs. 1 female, 1 juvenile. [NB: maybe it was the juvenile on an orb web? I didn’t specify in the notes. YL]. #510. Tagus Cove, Isabella [This is a mangrove area].” Notes from field book 19: 30: “on Croton bush, hanging from thread with legs 3,4. Legs 1,2 held outwards, flexed. No bolas. Spider stretches legs forward when I hum, then moves to edge of leaf and adopts same posture.”

*Distribution.* Galapagos Islands (Map 4A).

*Paratypes.* Galapagos Islands: Isabella Island, Tagus Cove, on *Croton scouleri* at night, 13 May 1983, 1 imm. (Y. Lubin 510, MCZ).

### *Mastophora escomeli* new species

Figures 351–361; Map 4A

*Glyptocranium gasteracanthoides*:—Escomel, 1918, 136 (misidentification).

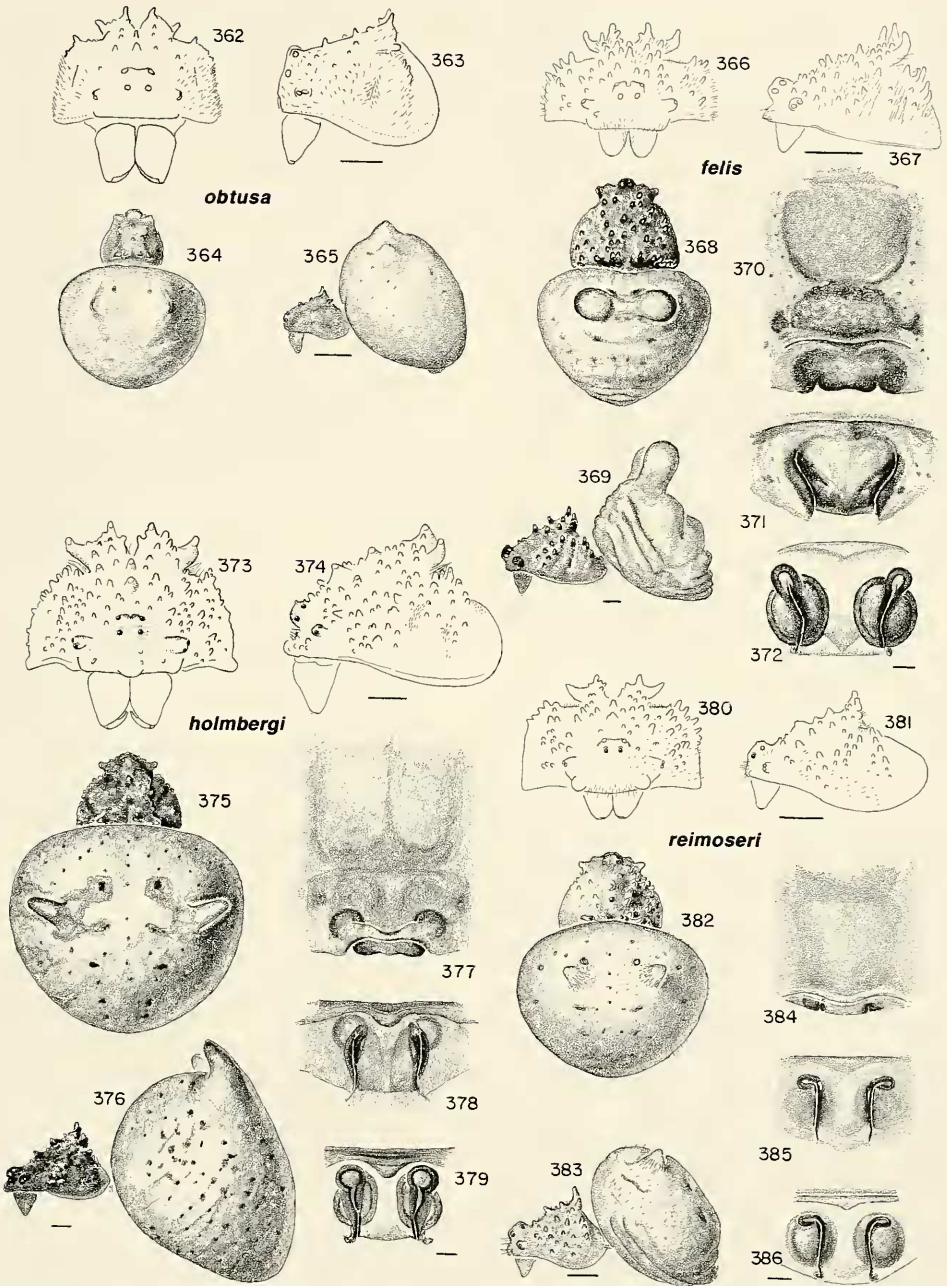
*Holotype.* Female holotype from Valle de Majes, nr. Arequipa, Depto. Arequipa, Peru, 1920 (E. Escomel), in MNHN. The species has been named after the collector and author of a paper on the venoms of *Mastophora*.

*Note.* A similar specimen examined by

Figures 362–365. *Mastophora obtusa* Mello-Leitão, immature female. 362, 363, carapace and chelicerae. 362, frontal. 363, lateral. 364, 365, carapace and abdomen. 364, dorsal. 365, lateral.

Figures 366–372. *M. felis* Piza, female. 366, 367, carapace and chelicerae. 366, frontal. 367, lateral. 368, 369, carapace and abdomen. 368, dorsal. 369, lateral. 370–372, epigynum. 370, ventral. 371, posterior. 372, posterior, cleared.

Figures 373–379. *M. holmbergi* Canals, female. 373, 374, carapace and chelicerae. 373, frontal. 374, lateral. 375, 376, carapace and abdomen. 375, dorsal. 376, lateral. 377–379, epigynum. 377, ventral. 378, posterior. 379, posterior, cleared.



Figures 380-386. *M. reimoseri* new species, female. 380, 381, carapace and chelicerae. 380, frontal. 381, lateral. 382, 383, carapace and abdomen. 382, dorsal. 383, lateral. 384-386, epigynum. 384, ventral. 385, posterior. 386, posterior, cleared.

Scale lines. 1.0 mm; genitalia, 0.1 mm.

Canals (MACN) was labeled *M. satan*, presumably because of its long first legs.

*Description.* Female holotype. Carapace orange-brown. Chelicerae brown. Labium, endites, sternum orange. Coxae orange, distal leg articles brown. Abdomen brownish, underlain by some white patches (Figs. 353, 354); venter with white square. Carapace with many large tubercles, tubercles on sides; tubercles with light tips, with short white setae between, but not covering tubercles, and longer white setae on sides (Figs. 351, 352). Median eyes on a bulge; lateral eyes on bulges. First tarsus with S-shaped curvature. Abdomen with long humps (Figs. 353, 354). Total length 13.5 mm. Carapace 5.0 mm long, 5.0 wide in thoracic region, 3.0 wide at lateral eyes. First femur 4.6 mm, patella and tibia 7.7, metatarsus 6.3, tarsus 1.6. Second patella and tibia 4.8 mm, third 2.7, fourth 4.3. Length of first patella and tibia 1.5 times width of carapace.

Male of uncertain affiliation. Color and shape as in other males. Total length 1.7 mm. Carapace 0.83 mm long, 0.81 wide in thoracic region, 0.54 wide at lateral eyes. First femur 0.72 mm, patella and tibia 0.81, metatarsus 0.49, tarsus 0.13. Second patella and tibia 0.71 mm, third 0.39, fourth 0.54. Length of first patella and tibia 1.0 times width of carapace.

*Note.* Affiliation of males with females is uncertain.

*Variation.* Total length of females 12.0–13.5 mm. Length of first patella and tibia 1.5–1.7 times width of carapace. The female from Ica is more setose, with long setae on the legs and many shorter setae on the abdomen. The depressions of the female epigynum are larger and the bulge between the slits is less distinct. The illustrations were made from the female holotype.

*Diagnosis.* *Mastophora escomeli* is distinguished from *M. gasteracanthoides* by having a swelling between the slits on the posterior of the epigynum (Fig. 356) and having the atrium ventral to the seminal receptacles (Fig. 357). In *M. gasteracanthoi-*

*thoides*, the slits are in a shared depression and the atria are dorsal to the seminal receptacles (Figs. 415, 416).

*Natural History.* Specimens were found on grapevines near Arequipa, and were known to readily bite grape workers as they pruned the plants, causing necrotic lesions.

*Distribution.* Dry coastal region of Peru (Map 4A).

*Paratypes.* PERU *Lima*: Lomas de Lachay, 26 May 1996, 1♀ (N. Llerana Martínez, MUSM). *Arequipa*: Arequipa, 1912, 2♀ (E. Escobal, MNHN); 1♀ (E. Escobal, MACN 4198).

*Specimens Examined.* PERU *Ica*: Ica, 1992, 1♀ (Cascavilca-Rubio, MACN). *La Libertad*: Cerro Campana, N Trujillo, 23 May 1989, many ♂, imm. (A. Salas, MUSM).

### *Mastophora obtusa* Mello-Leitão Figures 362–365; Map 4C

*Mastophora obtusa* Mello-Leitão, 1936: 134, fig. 2, imm. Immature holotype from Pesqueira, Pernambuco, Brazil, in MNRJ, 41845, examined. Roewer, 1942: 955. Platnick, 2001.

*Glyptocranium obtusum*:—Bonnet, 1957: 1998.

*Note.* Pesqueira is located in the note with the description of *M. pickeli*.

*Description.* Female holotype. Carapace reddish brown with white rim. Chelicerae, labium, endites brown. Sternum light brown. Coxae and distal leg articles brown. Abdomen very light brown; venter with white square. Carapace with short white setae on sides (Figs. 363, 364). Abdomen high with a pair of humps. Total length 4.8 mm. Carapace 1.8 mm long, 1.7 wide in thoracic region, 1.2 wide at lateral eyes. First femur 1.6 mm, patella and tibia 2.3, metatarsus 1.3, tarsus 0.5. Second patella and tibia 1.7 mm, third 0.8, fourth 1.8. Length of first patella and tibia 1.4 times width of carapace.

*Diagnosis.* Although the type is immature, *M. obtusa* is distinguished from many other species by the high abdomen and the humps on a joined swelling (Fig. 364). The high sides of the carapace, the shape of the tubercles, and the lack of pigment pattern on the abdomen suggest that the species belongs to the *M. gasteracanthoi-*



des group of species. Perhaps this is an immature of *M. satan*.

*Specimens Examined.* No other specimens have been found.

***Mastophora felis* Piza**  
**Figures 366–372; Map 4C**

*Mastophora felis* Piza, 1976: 83, fig. 1. Female holotype from Piracicaba, São Paulo, Brazil, in MZAQ no. A0105, examined. Brignoli, 1983: 273. Platnick, 2001.

*Note.* The holotype was embedded in difficult-to-remove fungal mycelium.

*Description.* Female holotype. Carapace dark brown with tips of tubercles light and a thin white rim, each posterior median eye in a light patch. Chelicerae brown. Labium, endites brown. Sternum brown. Coxae and distal leg articles orange-brown. Abdomen brownish gray (Figs. 368, 369); venter with a median white square. Carapace with long tubercles, the median of the horn's base with multiple tubercles (Figs. 366, 367), covered with short white setae between tubercles. Median and lateral eyes on bulges. Legs with white setae. Abdomen with a pair of long dorsal humps (Fig. 369). Total length 13.0 mm. Carapace 6.3 mm long, 6.4 wide in thoracic region, 3.8 wide at lateral eyes. First femur 5.8 mm, patella and tibia 10.6, metatarsus 8.8, tarsus 2.3. Second patella and tibia 6.7 mm, third 3.6, fourth 5.5. Length of first patella and tibia 1.6 times width of carapace.

Males are not known.

*Variation.* Total length of females 11.3–13.0 mm. Length of first patella and tibia 1.4–1.6 times width of carapace. The illustrations were made from the female holotype.

*Diagnosis.* *Mastophora felis* is distinguished from all others having long wide humps and carapace with tubercles on sides and by having the atria of the epigynum ventral to the seminal receptacles (at 11 and 1 h in Fig. 372) and the slits with a lateral lip (Fig. 371). The carapace tubercles are longer than those of *M. satan* and the posterior eyes are on light patches.

*Distribution.* Rio de Janeiro and São Paulo states, Brazil (Map 4C).

*Paratypes.* BRAZIL *Rio de Janeiro:* Santo Antônio, Rio Bonito [22°42'S, 42°37'W], 1933, 1 ♀ (S. Remente, IBSP 418). *São Paulo:* ?Campinas, July 1982, 1 ♀ (C. Froelich, IBSP 4968).

***Mastophora holmbergi* Canals**  
**Figures 373–379; Map 4C**

*Mastophora Holmbergi* Canals, 1931: 22, figs. 1–5, pl. 3, fig. 5; pl. 4, figs. 7, 8, ♀. Female from km 701, Santiago del Estero, in MACN, 24133 [7140], examined.

*Mastophora holmbergi.*—Mello-Leitão, 1931, 73, figs. 10, 21, ♀. Roewer, 1942, 900. Platnick, 2001.

*Glyptocranium holmbergi.*—Bonnet, 1957, 1997.

*Description.* Female holotype. Carapace dark red-brown to black, light transverse band in front of posterior median eyes. Sternum orange. Legs orange-brown. Abdomen with faint pattern (Figs. 375); venter with white square. Carapace with many tubercles with light tips especially on sides, and a few downy setae; lateral eyes on bulges (Figs. 373, 374). First tarsus slightly S-shaped. Abdomen with narrow humps. Total length 11.0 mm. Carapace 5.2 mm long, 5.3 wide in thoracic region, 3.0 wide at lateral eyes. First femur 5.7 mm, patella and tibia 10.0, metatarsus 9.2, tarsus 2.0. Second patella and tibia 6.2 mm, third 3.2, fourth 5.0. Length of first patella and tibia 1.9 times width of carapace.

Males are not known.

*Variation.* Total length of females 11.0–15.3 mm. The illustrations were made from the female holotype.

*Diagnosis.* Unlike *Mastophora reimersi*, *M. holmbergi* has long first legs. In the epigynum the atria are visible in ventral view (Fig. 377) and the slits are parallel, but at their ventral ends the slits bend toward each other (Fig. 378).

*Distribution.* Paraguay, to Santiago del Estero, Argentina (Map 4C).

*Specimens Examined.* PARAGUAY Rea. del . . . [illegible], Nov. 1940, 1 ♀ (Cranwell-Giai, MACN 1630).

***Mastophora reimoseri* new species**  
**Figures 380–386; Map 4C**

*Holotype.* Female holotype from Asuncion, Paraguay, 1908 (E. Reimoser), in NHMW. The species has been named after the collector and Austrian arachnologist, E. Reimoser.

*Description.* Female holotype. Specimen faded. Carapace yellow-brown. Chelicerae, labium, endites yellow-brown. Sternum, legs golden brown. Carapace with many tubercles and short setae, clypeus with longer setae (Figs. 380, 381). Median eyes and lateral eyes on bulges. First femora bent at their distal ends with long setae at point of greatest curvature. Abdomen with distinct humps and short setae, base of humps with longer setae (Figs. 382, 383). Total length 8.5 mm. Carapace 4.0 mm long, 4.0 wide in thoracic region, 2.3 wide at lateral eyes. First femur 3.7 mm, patella and tibia 6.2, metatarsus 4.5, tarsus 1.2. Second patella and tibia 4.0 mm, third 2.1, fourth 3.5. First patella and tibia 1.6 times width of carapace.

Males are not known.

*Diagnosis.* The species is distinguished by the musical note-shaped marks of the slits in the epigynum (Fig. 385), and by having shorter legs than *M. holmbergi*.

*Distribution.* Known only from Asuncion, Paraguay (Map 4C).

*Specimens Examined.* No other specimens have been found.

***Mastophora satan* Canals**  
**Figures 387–398, 462, 463; Map 4B**

*Mastophora satan* Canals, 1931: 25, figs. 1–5, pl. 3, fig. 6, ♀. Female holotype from La Rioja, Argentina, in MACN, 5260, examined. Mello-Leitão, 1931: 73, figs. 11, 22, ♀. Roewer, 1942: 901. Platnick, 2001.

*Glyptocranium satan*:—Bonnet, 1957: 1998.

*Description.* Female from Córdoba. Carapace dark brown with many short light setae and narrow white rim. Sternum red-brown. Legs red-brown with long white setae. Abdomen whitish with duskiness on humps and sides (Fig. 389); venter with white square. Carapace with many tubercles, lateral eyes on bulges, median

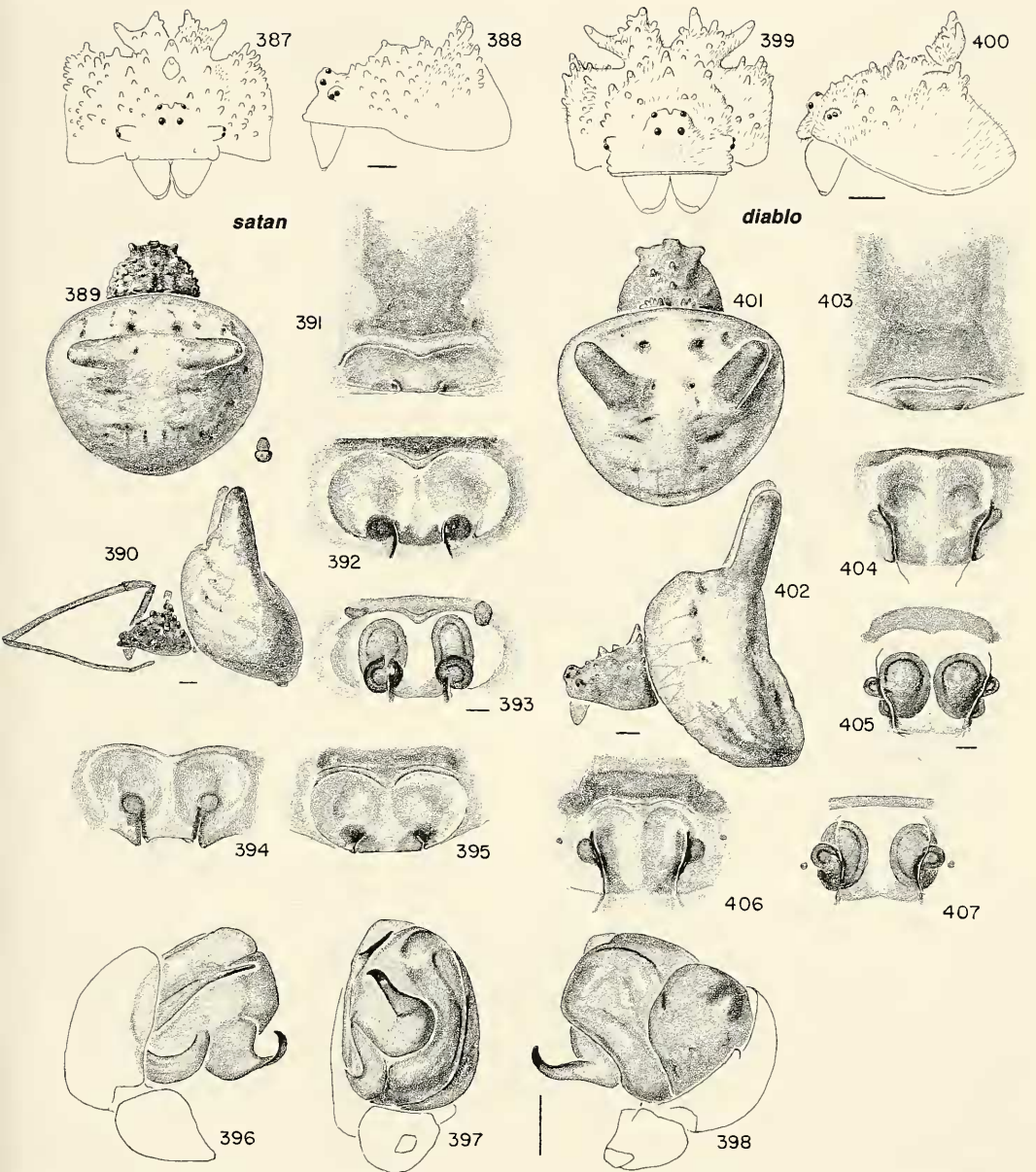
eyes on bulge (Figs. 387, 388). Abdomen humps very long (Figs. 389, 390). Total length 14.0 mm. Carapace 6.4 mm long 6.6 wide in thoracic region, 3.5 wide at lateral eyes. First femur 7.0 mm, patella and tibia 11.5, metatarsus 10.0, tarsus 2.2. Second patella and tibia 7.0 mm, third 3.3, fourth 5.7. Length of first patella and tibia 1.7 times width of carapace.

Male from Rio Grande do Sul, Brazil. Carapace beige with a triangular white patch. Sternum, legs beige. Abdomen whitish. Carapace with four tubercles, abdomen with two humps. Total length 1.7 mm. Carapace 0.92 mm long, 0.81 wide in thoracic region, 0.58 wide at lateral eyes. First femur 0.87 mm, patella and tibia 0.92, metatarsus 0.49, tarsus 0.31. Second patella and tibia 0.74 mm, third 0.44, fourth 0.55.

*Note.* The association of male and female is uncertain. The male is placed with the most common species in the area; also, a female of the species has been collected at the collecting site.

*Variation.* Total length of females 9.7–17.5 mm. The holotype is 11.2 mm total length, carapace 5.7 mm wide and long, the first patella and tibia 9.7. Length of first patella and tibia 1.4–1.6 times carapace width in females from Brazil, 1.7 in specimens from Uruguay, 1.5 from Mendoza, 1.6 from La Pampa, 1.5 from Entre Rios. The illustrations were made of a female from Córdoba Province, Argentina, a female from La Rioja Province (Fig. 394), a female from Tucumán Province (Fig. 395), and of the male from Rio Grande do Sul, Brazil.

*Diagnosis.* *Mastophora satan* is separated from *M. gasteracanthoides* and *M. diablo* by the long first tibia and metatarsus, each 9.7 mm or longer. The epigynum differs from that of *M. diablo* by showing the atria as a dark patch in the dorsal slope of a depression (Figs. 392, 394, 395), whereas in *M. satan*, atria are outside and lateral to the depression (Figs. 404, 406). The epigynum is similar to that of *M. gasteracanthoides* but differs in ventral view, where



Figures 387-398. *Mastophora satan* Canals. 387-395, female. 387, 388, carapace and chelicerae. 387, frontal. 388, lateral. 389, 390, carapace and abdomen. 389, dorsal, with male. 390, lateral. 391-395, epigynum. 391, ventral. 392, 394, 395, posterior. 393, posterior, cleared. 392, 393, (Córdoba). 394, (holotype from La Rioja). 395, (Tucumán). 396-398, male left palpus. 396, mesal. 397, ventral. 398, ectal.

Figures 399-407. *M. diablo* new species, female. 399, 400, carapace and chelicerae. 399, frontal. 400, lateral. 401, 402, carapace and abdomen. 401, dorsal. 402, lateral. 403-407, epigynum. 403, ventral. 404, 406, posterior. 405, 407, posterior, cleared. 404, (Chaco). 406, 407, (Santiago del Estero).

Scale lines. 1.0 mm; genitalia, 0.1 mm.



*M. gasteracanthoides* has a distinct sclerite a short distance anterior to the posterior edge (Fig. 414), whereas *M. satan* has the whole median area slightly sclerotized (Fig. 391).

The median apophysis of the palpus of the male (Fig. 398) is more curved than that of *M. gasteracanthoides* (Fig. 420).

The egg sac lacks flaps and has only a short stalk (Figs. 462, 463).

*Distribution.* From Pernambuco State, eastern Brazil, to La Pampa Province, Argentina (Map 4B).

*Specimens Examined.* BRAZIL *Pernambuco:* Tapera, 1 ♀ (B. Pickel, MNRJ 391). *Bahia:* Feiora de Santana, July 1994, 1 ♀ (S. D. Cunha, IBSP 16246). *São Paulo:* Santo André, 16 June 1965, 1 ♀ (L. Daga, IBSP 1931); Seminário Santa Terezinha, Tietê, 5 May 1953, 1 ♀ (IBSP 887); São José do Rio Preto, 9 Feb. 1964, 1 ♀ (Vizotto, MZSP 3471); 1 June 1964, 1 egg sac, 1 ♀ (Vizotto, MZSP 3470). *Santa Catarina:* Blumenau, 1 ♀ (NHMW). *Rio Grande do Sul:* 1 ♀ (P. Buck, MNRJ 41644); Rodeio Bonito, Bogé, 5 June 1980, 1 ♀ (E. W. Aguiar, MCN 9103); Canela, 10 Feb. 1966, 2 ♀ (A. A. Lise, MCN 0752); São Leopoldo, 5 Mar. 1965, 1 ♀ (C. Valle, MZSP 4797); Porto Alegre, 12 Apr. 1926, 1 ♀ (R. Gliesch, MNRJ 392); Parque Zoológico, Sapucaia do Sul, 9 Dec. 1985, 2 ♀ (A. E. Tavares, MZSP 14079); Porto Alegre, 17 Mar. 1955, 1 imm. (T. de Lema, MCN 01628); 16 June 1963, 1 ♀ (A. Lise, MCN 01820); 6 Oct. 1988, 1 ♀ (R. Villanova, MCP 105); Belem Velho, Porto Alegre, 17 July 1979, 1 ♀ (V. Mott, MCN 2608); Morro Santana, Porto Alegre, 5 May 1984, 1 ♂ (S. M. Silva, MCN 12204); 13 Sept. 1984, 1 ♀ (A. A. Lise, MCN 29426); Santa Maria, Aug. 1986, 1 ♀ (MCP 10340); Santo Antônio da Patrulha, 30 Oct. 1980, 1 ♀ (T. K. Moreira, MCN 9456). URUGUAY Villalba, 1953, 1 ♀ (L. Lecour, FCMU); Paso del Cerro (Artigas), May 1956, 1 ♀ (C. Fuques, FCMU); Artigas, Sept. 1959, 1 ♀ (C. Fuques, FCMU); Mar. 1965, 1 ♀ (C. Fuques, FCMU 1965); Ruta 3, Salto, 3 Aug. 2001, 1 ♀ (V. Vázquez, Williams, FCMU 562); Cuareim, Espinillares, Artigas, 12 Mar. 1956, 1 ♀ (C. Fuques, FCMU 296). ARGENTINA *Misiones:* 1940, 1 ♀ (Exp. Zotla, Armanini, MACN 2050). *Catamarca:* Siján, Nov. 1964, 1 ♀ (Ahumada, MACN). *La Rioja:* 2 ♀ (Sr. Giacomelli, MACN 4186). *Tucumán:* Tucumán, 12 Dec. 1984, 1 ♀ (FMLT 2159). *Santiago del Estero:* Santiago del Estero, 20 Apr. 1958, 1 ♀ (J. W. Abalos, MACN); La Banda, 1958, 1 ♀ (J. Abalos, MACN); July 1958, 1 ♀ (D. Bravo, MACN); Tabla Redonda, Depto. Banda, 23 Dec. 1959, 1 ♀, egg sacs, imm. (J. W. Abalos, MACN). *Mendoza:* Mendoza, 1907, 1 ♀ (E. Reimoser, NHMW); San Rafael, Feb. 1940, 1 ♀ (D. Pereyra, MACN 1799). *Córdoba:* Mina Clavero, April 1973, 1 ♀ (Stirbel, MACN). *Entre Ríos:* Concordia, 1931,

1 ♀ (MNRJ 57953). *Santa Fé:* Santa Fé, 1931, 1 ♀ (M. Birabén, MNRJ 522). *Buenos Aires:* Ireneo Portela, 30 April 1922, 1 ♀ (Scheimer, MACN). *La Pampa:* General Pico, Feb. 1952, 1 ♀ (Williamson, MACN); 30 Mar. 1958, 2 ♀, doubtful determination (Williamson, MACN).

### *Mastophora diablo* new species

Plate 1; Figures 399–407, 464; Map 4D

*Holotype.* Female holotype from Colonia Benítez, Chaco, Argentina, Sept. 1959 (Bachmann) in MACN, no. 5432.

*Mastophora gasteracanthoides:*—Mello-Leitão, 1931: 69, in part. Canals, 1931: 19 (misidentified *gasteracanthoides* Nicolet).

*Note.* Most specimens of this species had been misidentified as *M. gasteracanthoides* in collections.

*Description.* Female holotype. Carapace brown, with many downy short setae and narrow white rim. Sternum brown. Legs brown with long white setae. Abdomen brownish white; venter with white square. Abdomen humps long (Figs. 401, 402). Total length 13.0 mm. Carapace 5.3 mm long, 5.8 wide in thoracic region, 3.2 wide at lateral eyes. Abdomen 15 mm high. First femur 5.5 mm, patella and tibia 8.6, metatarsus 6.3, tarsus 1.3. Second patella and tibia 5.7 mm, third 3.0, fourth 4.8. Length of first patella and tibia 1.5 times width of carapace.

Males are not known.

*Variation.* Total length of females 10.3–16.7 mm. Length of first patella and tibia 1.3–1.5 times width of carapace. Figures 399–405 were made from the female holotype; Figures 406 and 407 were from specimens from Santiago del Estero.

*Diagnosis.* Differs from *M. satan* in having first tibia less than 9 mm total length and from both *M. satan* and *M. gasteracanthoides* by having the atria outside and lateral to the depressions in posterior view of the epigynum (Figs. 404–407).

The egg sac lacks flaps and has a heavier stalk (Fig. 464) than that of *M. satan*.

*Natural History.* A large syrphid fly (14 mm total length) was collected in Moreno, Buenos Aires, with one adult.



Figures 408-421. *Mastophora gasteracanthoides* (Nicolet). 408-416, 421, female. 408, 409, carapace and chelicerae. 408, frontal. 409, lateral. 410-413, carapace and abdomen. 410, 412, dorsal, with male. 411, 413, lateral. 410, 411, (Santiago). 412, 413, (Chillán). 414-416, epigynum. 414, ventral. 415, posterior. 416, posterior, cleared. 417-420, male left palpus. 417, apical. 418, mesal. 419, ventral. 420, ectal. 421, female, frontal view with right legs.

Scale lines. 1.0 mm; genitalia, 0.1 mm.

*Distribution.* Northern and central Argentina to La Pampa Province (Map 4D).

*Paratypes.* ARGENTINA *Formosa:* Las Lomitas, Oct. 1966, 1♀ (A. Vogt, MACN). *La Rioja:* 2♀ (Prof. Gómez, MACN 4187). *Tucumán:* El Timbó, 27 May 1952, 2♀ (J. Campos, FMLT 994); Los Bosques, 1♀ (BMNH); Dept. Burruyaco, El Haranjo, 13 June 1964, 1♀ (M. Inés Cortez, FML 1693). *Santiago del Estero:* El Zanjón, 5 June 1960, 1♀ (J. W. Abalos, MACN); Fernández, 4 Apr. 1960, 1♀ (J. W. Abalos, MACN); Frías, 2 Oct. 1970, 1♀ (J. W. Abalos, MACN); La Banda, 24 May 1958, 1♀ (J. Areas, MACN); Los Juries, March 1959, 1♀ (L. Remedi, MACN); Santiago del Estero, 18 Sept. 1958, 1♀ (D. Luna, MACN); 1959, 1♀ (J. W. Abalos, MACN). *Corrientes:* Bella Vista, Nov. 1944, 1♀ (Silberman, MACN). *Entre Ríos:* Basavilbaso, 1♀ (U. Podesta, MACN 4189). *Santa Fé:* Roldán, June 1943, 1♀ (Escuela 230, MACN). *Córdoba:* Argüello, Feb. 1946, 1♀ (J. A. De Carlo, MACN 1657); Bajo Grande, 1♀ (MLP 15563). *Buenos Aires:* Castela, 27 July 1958, 1♀ (Ing. Favret); Moreno, Jan. 1946, 1♀ (R. D. Schiapelli, MACN 1658). *La Pampa:* Mira Pampa, April 1949, 1♀ (C. Vigliorcho, MLP 16638); General Pico, March 1951, 1♀ (C. Ballani, MLP 13642).

*Mastophora gasteracanthoides* (Nicolet)

Figures 7, 408–421, 464; Map 4B

*Epeira gasteracanthoides* Nicolet, 1849: 485, pl. 5, fig. 7a, b, ♀. Specimens from gardens and fields of central provinces, Santiago, Chile, in MNHN, lost.

*Glyptocranium gasteracanthoides*.—Simon, 1895: 882, fig. 946, ♀. Bonnet, 1957: 1997.

*Mastophora gasteracanthoides*.—Porter, 1918: 139. Rocwer, 1942: 901. Archer, 1963: 19. Platnick, 2001.

*Mastophora gasteracanthoides oxalidis* Archer, 1963: 16. Female holotype, males, and imm. from Loma de Peñuelas, 6 km al sur de La Serena, Coquimbo, in AMNH, examined. Platnick, 2001. NEW SYNONYMY.

*Note.* The short humps of recently collected specimens from Santiago (Figs. 410, 411) differ from those of the specimens illustrated by Nicolet (1849) and Simon (1895), which have higher humps. Older specimens kept in MNHN from Chillan (Figs. 412, 413) had longer humps but

genitalia and carapace similar to those of recently collected specimens.

The subspecies named by Archer (1963) had no diagnosis.

*Description.* Female from Santiago. Carapace brown, tubercles lighter. Chelicerae lighter. Sternum brown. Legs lighter brown. Abdomen brownish white with some asymmetrical darker patches and humps (Figs. 410, 411); venter with white square. Total length 12 mm. Carapace 4.8 mm long, 4.8 wide in thoracic region, 2.5 wide at lateral eyes. First femur 4.0 mm, patella and tibia 6.3, metatarsus 4.8, tarsus 1.3. Second patella and tibia 4.3 mm, third 2.6, fourth 4.0. Length of first patella and tibia 1.3 times width of carapace.

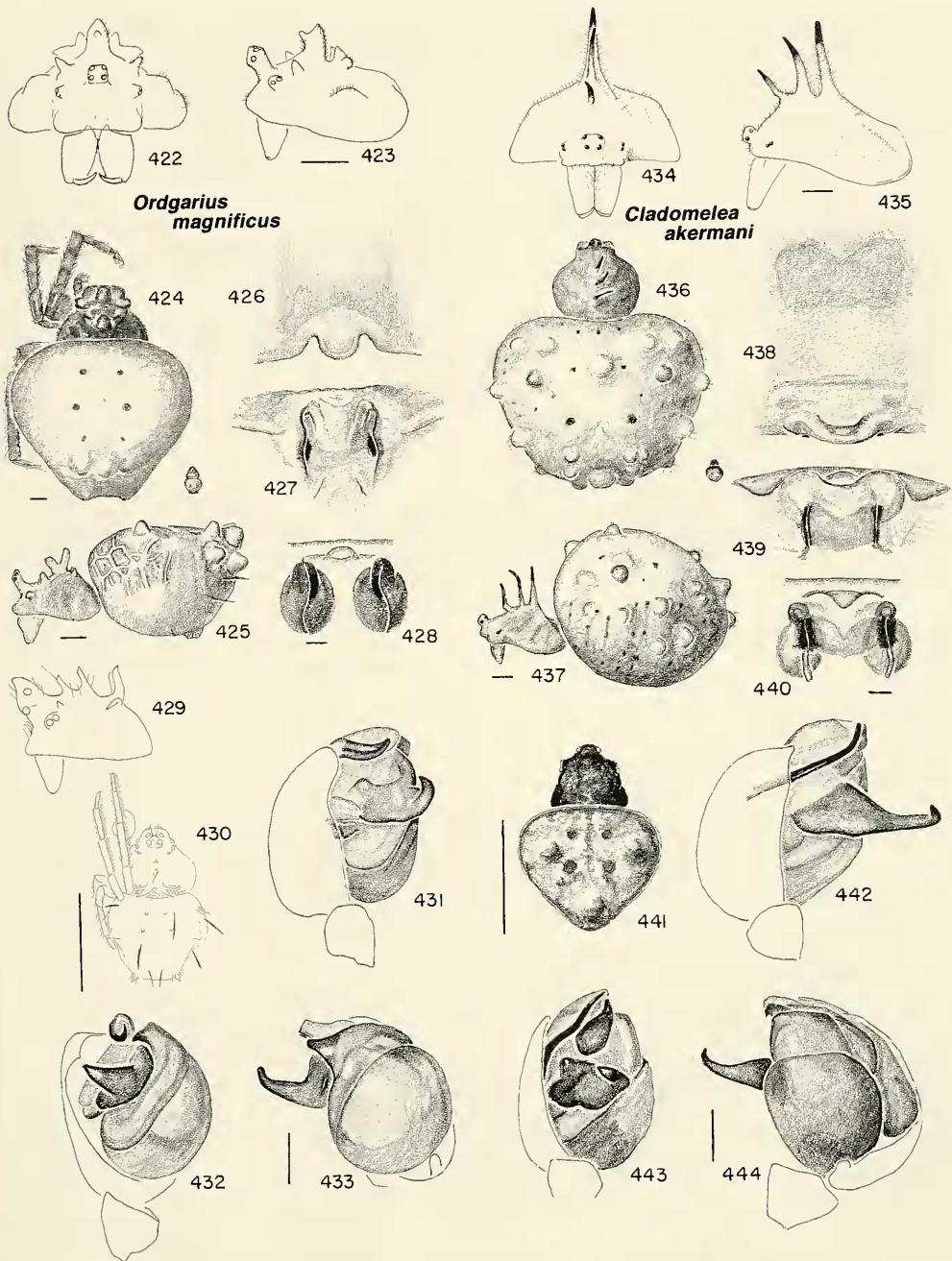
Male. Carapace brown, with white median band covering the two median tubercles and the pair of horns. Sternum, legs brown. Abdomen dusky white anterior, venter with indistinct white spots. Abdomen without humps (Fig. 7). The palpus has one weak patellar seta. Total length 2.3 mm. Carapace 0.9 mm long, 0.9 wide in thoracic region, 0.7 wide at lateral eyes. First femur 0.9 mm, patella and tibia 1.0, metatarsus 0.6, tarsus 0.3. Second patella and tibia 0.9 mm, third 0.5, fourth 0.7. Length of first patella and tibia 1.1 times width of carapace.

*Note.* Males came out of an egg sac collected with females.

*Variation.* Total length of females 9.6–13.5 mm. The illustrations of the female are made from a female from Santiago, except Figures 412 and 413, which are of a female from Chillan.

*Diagnosis.* *Mastophora gasteracanthoides* differs from *M. diablo* by having the atria show as dark spots in the posterior slope of the depression in posterior view of the epigynum (Fig. 415), and from *M.*





*Ordgarius magnificus*

*Cladomelea akermani*

Figures 434-444. *Cladomelea akermani* Hewitt. 434-440, female. 434, 435, carapace and chelicerae. 434, frontal. 435, lateral. 436, 437, carapace and abdomen. 436, dorsal, with male. 437, lateral. 438-440, epigynum. 438, ventral. 439, posterior. 440, posterior, cleared. 441-444, male. 441, dorsal. 442-444, left palpus. 442, mesal. 443, ventral. 444, ectal.

Scale lines. 1.0 mm; genitalia, 0.1 mm.

*satan* by having shorter first legs and a distinct sclerotized plate on the epigynum, anterior of the posterior margin, in ventral view (Fig. 414).

The palp of the male has a median apophysis straighter (Fig. 420) than that of *M. satan* (Fig. 398).

The egg sac (Fig. 465) lacks flaps and has a thin stalk.

*Distribution.* Central Chile (Map 4B).

*Specimens Examined.* CHILE 1♀ (MNHN, 114). *Coquimbo*: 6 km S of La Serena, 23–30 Nov. 1961, 1♀, egg sac with ♂ and imm. ♀ (A. F. Archer, AMNH). *Valparaíso*: Quilput [Quilpué], 1904, 1♀ (C. Porter, MNHN 23457). *Metropolitana*: Santiago, 4 June 1947, 1 imm. (R. Donoso, AMNH); Feb. 1955, 1♀ (I. Pedag., AMNH); Quilicura, Oct. 1979, 1♀ (L. Peña, AMNH), Aug.–Sept., 2 imm. (L. E. Peña, AMNH); Rencá, W of Santiago, 2 Oct. 1984, 1♀ (L. E. Peña, AMNH); Los Espejo, 6 Nov. 1973, 1♀ (C. L. Cartagena, MCZ). *Nuble*: Chillán, 1♀ (Delfin, MNHN, 23520).

### *Ordgarius* Keyserling

*Ordgarius* Keyserling, 1886: 114. Type species by monotypy, *M. monstrosus* Keyserling, 1886, from Queensland, Australia. Neave, 1940: 453. Roewer, 1942: 902. Bonnet, 1958: 3200. Davies, 1988: 318, figs. 36, 37, ♀, ♂.

*Euglyptila* Simon, 1908: 151. Type species designated by Bonnet, 1956, *E. acanthonotata* from Tonkin [northern Vietnam]. Neave, 1939b: 325. Roewer, 1942: 903. Bonnet, 1956: 1810. NEW SYNONYMY.

*Note.* Two species of *Euglyptila* were described by Simon, both from immatures. *Euglyptila acanthonotata* is in MNHN, lost; the other, *E. nigrithorax*, 2.5 mm total length was found, described, and illustrated by Emerit (1980). It is an immature of *Ordgarius sexspinosus* Thorell, 1894, total length 14 mm, and is illustrated by Yin, 1997: 384. NEW SYNONYMY.

### *Ordgarius magnificus* (Rainbow) Figures 422–433, 466

*Dicrostichus magnificus* Rainbow, 1897: 523, pl. 17, fig. 8, ♀. Holotype from Mount Kembla, New South Wales, Australia, not examined. Roewer 1942: 900.

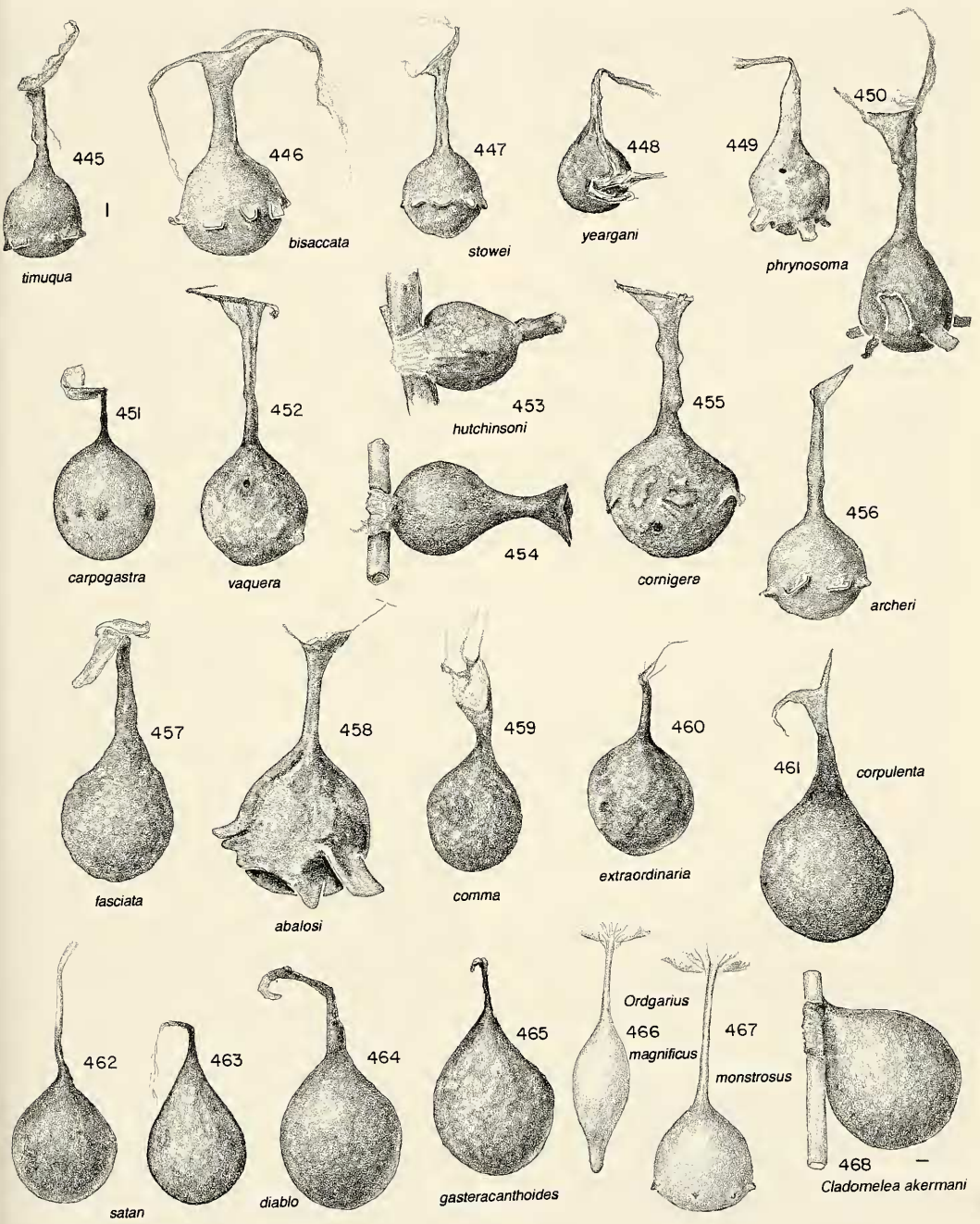
*Ordgarius magnificus*.—Davies, 1988: 316.

*Description.* Female. Carapace yellowish, dark brown in groove between cephalic and thoracic areas, a dark band above eyes, tubercles white. Sternum light orange. Coxae and distal leg articles light orange. Abdomen yellowish white with ventral white square. Carapace with median eyes on stalk, with horns quite small (Figs. 422, 423). Eyes subequal, median eye area almost square. Chelicerae fang groove with three anterior teeth, one small posterior tooth. Abdomen narrowing to posterior end, with tubercles (Figs. 424, 425). Total length 13.5 mm. Carapace 6.3 mm long, 6.7 wide in thoracic region, 3.3 wide at lateral eyes. First femur 6.0 mm, patella and tibia 7.3, metatarsus 4.7, tarsus 1.4. Second patella and tibia 7.0 mm, third 3.9, fourth 5.8. Length of first patella and tibia 1.1 times width of carapace.

Male. Carapace beige, white pigment spots at base of spines. Sternum dark brown. Legs light beige. Dorsum of abdomen white, venter black. Carapace (Fig. 429), abdomen as in Figure 430. Row of setae on tarsi as in male *Mastophora*. Palpal patella with no setae. No endite tooth, no coxal hook. Total length 1.7 mm. Carapace 0.88 mm long, 0.81 wide in thoracic region, 0.52 wide at lateral eyes. First femur 0.78 mm, patella and tibia 0.89, metatarsus 0.57, tarsus 0.30. Second patella and tibia 0.78 mm, third 0.39, fourth 0.59. Length of first patella and tibia 1.1 times width of carapace.

---

Figures 445–468. Egg sacs of *Mastophora* species, including species of *Ordgarius* and *Cladomelea*. 445, *M. timuqua*. 446, *M. bisaccata*. 447, *M. stowei*. 448, *M. yeargani*. 449, 450, *M. phrynosoma*. 449, (Kentucky). 450, (Florida). 451, *M. carpogastra*. 452, *M. vaquera*. 453, 454, *M. hutchinsoni*. 453, (after Kaston, 1981). 454, (New Jersey). 455, *M. cornigera*. 456, *M. archeri*. 457, *M. fasciata*. 458, *M. abalosi* (after Urtubey and Báez, 1983). 459, *M. comma* (after Báez and Urtubey, 1985). 460, *M. extraordinaria*. 461, *M. corpulenta*. 462, 463, *M. satan*. 462, (Santiago del Estero). 463, (Rio Grande do Sul). 464, *M. diablo*.



465, *M. gasteracanthoides*. 466, *Ordgarius magnificus* (after Davies, 1988). 467, *O. monstrosus* (after Davies, 1988). 468, *Cladomelea akermani*.

Scale lines. 1.0 mm; all except 466 and 467 are approximately the same magnification.



**Genitalia.** The epigynum like *Mastophora* in having only a posterior lobe ventrally (Fig. 426) and having two slits and diagnostic sculpturing on the posterior face (Fig. 427) and having indistinct atria (Fig. 428). The palpus of the male has no conductor but has the tip of the tegulum sclerotized (at 11 h in Fig. 433) and the median apophysis more sclerotized than that of *Mastophora* (Figs. 431–433).

**Variation.** The female examined came from Olderley, Brisbane, Queensland, the male from Mulgowie, SE Queensland (QMB).

**Natural History.** Unlike most *Mastophora*, this species ties leaves together and may have a diurnal retreat. The female uses the second leg to swing a bolas. The egg sac of *O. magnificus* is spindle-shaped (Fig. 466), that of *O. monstrosus* resembles those of *Mastophora* and has minute flaps (Fig. 467).

**Distribution.** Australia.

### *Cladomelea* Simon

*Cladomelea* Simon, 1895: 886, figs. 949, 950. Type species by original designation *Cyrtarachne longipes* O. P.-Cambridge, 1877: 559, from West Africa. Neave, 1939a: 750. Roewer, 1942: 900. Bonnet, 1956: 1097.

**Note.** *Cladomelea longipes* is very similar to *C. akermani*.

### *Cladomelea akermani* Hewitt

Figures 434–444, 468

*Cladomelea akermani* Hewitt, 1923: 63, figs. 4, 5, ♀. Female holotype from Pietermaritzburg, Natal, not examined. Roewer, 1942: 500. Leroy, Joqué, and Leroy, 1998: 1, ♀, ♂.

**Description.** Female. Carapace light orange-brown, distal ends of projections black. Chelicerae, labium, endites orange. Sternum light orange-brown. Coxae orange-brown; legs brown. Dorsum of abdomen whitish with a pair of brown tubercles (Fig. 436); venter whitish with a median, transverse, white rectangle. Carapace with median eyes on a bulge, three projections and long white setae, no horns (Figs. 434, 435). Height of clypeus equals

about five diameters of anterior median eye. Abdomen widest in middle, dorsum with numerous rounded tubercles, not completely symmetrical (Figs. 436, 437). Total length 15.5 mm. Carapace 5.4 mm long, 5.2 wide, 2.3 wide at lateral eyes. First femur 6.7 mm, patella and tibia 10.8, metatarsus 8.4, tarsus 1.4. Second patella and tibia 7.3 mm, third 3.3, fourth 4.7. Length of first patella and tibia 1.9 times width of carapace.

**Male.** Carapace, labium, endites, sternum dark brown. Coxae, distal leg articles light. Dorsum of abdomen maculated black, gray, and white (Fig. 441); venter dark brown. Carapace rugose, without tubercles, posterior area swollen. Height of clypeus equals 1.8 diameters of anterior median eye. Endite without tooth. Palpal patella without macroseta. First coxa without hook. Row of setae on tarsi, as in male *Mastophora*. Abdomen widest in middle, dorsum sclerotized with three humps and two pairs of sclerotized discs (Fig. 441). Total length 1.6 mm. Carapace 0.94 mm long, 0.72 wide, 0.51 wide at lateral eyes. First femur 0.80 mm, patella and tibia 0.91, metatarsus 0.48, tarsus 0.34. Second patella and tibia 0.70 mm, third 0.41, fourth 0.57. Length of first patella and tibia 1.3 times width of carapace.

**Genitalia.** The epigynum is as in *Mastophora*, having only a posterior lip ventrally (Fig. 438) and having two slits and diagnostic sculpturing on the posterior face (Fig. 439) and tiny atria (Fig. 440). The palpus of the male has a distinct conductor supporting the embolus (at 1 h in Fig. 443) and the median apophysis more sclerotized than that of *Mastophora* (Figs. 442–444).

**Variation.** A second female from Pietermaritzburg, Natal (AMNH), examined had the height of the clypeus only four diameters of the anterior median eye. Female examined and illustrated from Umgeni Valley Reservation, Kwa-Zulu-Natal, South Africa, the male came from Umgeni Valley project near Howick, South Africa (NMP).

*Natural History.* The spider is found in grasslands on grass of the Kwa-Zulu-Natal area around Pietermaritzburg, South Africa (Leroy et al., 1998). The egg sac is drop-shaped and attached to a grass blade (Fig. 468). The female handles the bolas with a second leg and swings it in a horizontal plane.

*Distribution.* South Africa.

## LITERATURE CITED

- ALVAREZ DEL TORO, M. 1992. Arañas de Chiapas. Chiapas, México: Universidad Autónoma de Chiapas, Tuxtla Gutiérrez. 297 pp.
- AMERICAN GEOGRAPHICAL SOCIETY. 1944. Index to Map of Hispanic America. Vol. 5. Geographical Names in Brazil. Washington, DC: U.S. Government Printing Office.
- ARCHER, A. F. 1963. Catalogo de las arañas Chilenas de las familias de la division Metarachnae. Publicación Ocasional del Museo Nacional de Historia Natural, Santiago de Chile, **1**: 1–32.
- ATKINSON, G. F. 1888. New instances of protective resemblance in spiders. *American Naturalist*, **22**: 545–546.
- BÁEZ, E. C. DE, AND N. URTUBEY. 1985. *Mastophora comma*, nueva especie de araña “cabeza de gato” (Araneae, Araneidae). *Investigacion, Instituto de Animales Venenosos, Santiago del Estero, Argentina*, **2**: 1–11.
- BANKS, N. 1898. Arachnida from Baja California and other parts of Mexico. *Proceedings of the California Academy of Sciences*, 3rd Series, **1**: 205–300.
- . 1910. Catalogue of Nearctic spiders. *Bulletin of the U.S. National Museum*, **72**: 1–80.
- BECKER, L. 1879. Diagnoses de nouvelles Aranéides américaines. *Annales de la Société entomologique de Belgique*, **22**: 77–86.
- BIRABÉN, M. 1946. Nueva *Mastophora* de Tucumán (Arachnida, Argiopidae). *Acta Zoologica del Instituto “Miguel Lillo”*, **3**: 327–330.
- BONNET, P. 1955. *Bibliographia Araneorum*. Toulouse, France: Les Frères Douladure, **2**(1): 1–918.
- . 1956. *Bibliographia Araneorum*. Toulouse, France: Les Frères Douladure, **2**(2): 919–1926.
- . 1957. *Bibliographia Araneorum*. Toulouse, France: Les Frères Douladure, **2**(3): 1927–3026.
- . 1958. *Bibliographia Araneorum*. Toulouse, France: Les Frères Douladure, **2**(4): 3027–4230.
- BRÉTHES, J. 1909. *Mastophora extraordinaria* Holbg. y su nificación. *Annales del Museo Buenos Aires*, **10**(3): 163–168.
- BRIGNOLI, P. 1983. *A Catalogue of the Araneae Described Between 1940 and 1981*. Manchester, United Kingdom: Manchester University Press. 755 pp.
- CAMBRIDGE, F. P.-. 1904. Arachnida, Araneidea and Opiliones. **2**: 465–545. *In* *Biologia Centrali-Americana, Zoologia*, London.
- CAMBRIDGE, O. P.-. 1877. On some new species of Araneidae, with characters of two new genera and some remarks on the families Podophthalmides and Dinopides. *Proceedings of the Zoological Society, London*, **1977**: 557–578.
- . 1889–1902. Arachnida, Araneidea. **1**: 1–317. *In* *Biologia Centrali-Americana, Zoologia*, London.
- CANALS, J. 1931. Las Arañas del genero *Mastophora* Holmberg en la Argentina. *Annales del Museo Buenos Aires*, **37**: 17–27.
- CLYNE, D. 1973. Notes on the web of *Pocillopachys australasia* (Griffith and Pigeon, 1833) (Araneida, Argiopidae). *Australian Entomology Magazine*, **1**(3): 23–30.
- DAVIES, V. T. 1988. An illustrated guide to the genera of orb-weaving spiders of Australia. *Memoirs of the Queensland Museum, Brisbane*, **25**: 273–332.
- EBERHARD, W. G. 1977. Aggressive chemical mimicry by a bolas spider. *Science*, **198**: 1173–1175.
- . 1981 (1980). The natural history and behavior of the bolas spider *Mastophora dizzydeani* sp. n. (Araneidae). *Psyche*, **87**: 143–169.
- EMERIT, M. 1977. *Cyrtarachne ixodoides*, une araignée rare de Midi de la France. *Revue Arachnologique*, **1**: 23–31.
- . 1978. Deux sous familles d’Araneidae (les Cyrtarachnae et Mastophorinae) nouvelles pour Madagascar. *Symposia of the Zoological Society of London*, **42**: 359–365.
- . 1980. *Exechocentrus lancearius* Simon, 1889; la redécouverte d’une araignée rare de Madagascar. *Revue Arachnologique*, **3**(1): 13–23.
- . 2000. Contribution à l’étude des Aranéides de Madagascar et des Comores: la sous-famille des Cyrtarachnae (Araneae, Araneidae). *Revue Arachnologique*, **13**(11): 145–162.
- EMERTON, J. H. 1884. New England spiders of the family Epeiridae. *Transactions of the Connecticut Academy of Arts and Sciences*, **6**: 295–342.
- ESCOMEL, E. 1918. Le *Glyptocranium gasteracanthoides*, araignée venimeuse du Perou, etude clinique et expérimentale de l’action du venin. *Bulletin de la Société de Pathologie Exotique*, **11**: 136–150.
- GEMENO, C., K. V. YEARGAN, AND K. F. HAYNES. 2000. Aggressive chemical mimicry by the bolas spider *Mastophora hutchinsoni*. *Journal of Chemical Ecology*, **26**: 1235–1243.
- GERTSCH, W. J. 1955. The North American bolas spiders of the genera *Mastophora* and *Agatostichus*. *Bulletin of the American Museum of Natural History*, **106**(4): 223–254.
- HAYNES, K. F., K. V. YEARGAN, J. G. MILLAR, AND B. B. CHASTAIN. 1996. Identification of sex pheromone of *Tetanolita mynesalis* (Lepidoptera: Nocuidae), a prey of bolas spider, *Mastophora*

- hutchinsoni*. *Journal of Chemical Ecology*, **22**: 76–89.
- HENTZ, N. M. 1850. Descriptions and figures of the araneids of the United States. *Boston Journal of Natural History*, **6**: 18–35.
- . 1875. The spiders of the United States. *Occasional Papers of the Boston Society of Natural History*, **2**: 1–171.
- HEWITT, J. 1923. On certain South African Arachnida, with descriptions of three new species. *Annals of the Natal Museum*, **5**: 55–66.
- HOLMBERG, E. L. 1876. Los Arácnidos Argentinos. *Anales de Agricultura*, **4**: 15–198.
- HUTCHINSON, C. E. 1903. A bolas-throwing spider. *Scientific American*, **89**: 172.
- INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE. 1999. *International Code of Zoological Nomenclature*, fourth edition. London. 306 pp.
- KASTON, B. J. 1948. Spiders of Connecticut. *State Geological and Natural History Survey of Connecticut, Bulletin*, **70**: 1–874.
- KEYSERLING, E. 1880. Neue Spinnen aus Amerika. *Verhandlungen der königlichen und kaiserlichen zoologisch-botanischen Gesellschaft in Wien*, **29**: 293–350.
- . 1886. Die Arachniden Australiens. Nürnberg, Germany: Verlag von Bauer und Raspe. **2**(33, 34): 87–152.
- . 1892–1893. Die Spinnen Amerikas, Epeiridae. Vol. 4. Nürnberg, Germany: Verlag von Bauer und Raspe. 377 pp.
- LEROY, J.-M., R. JOCQUÉ, AND A. LEROY. 1998. On the behaviour of the African bolas-spider *Cladomelea akermani* Hewitt (Araneae, Araneidae, Cyrtarachninae), with description of the male. *Annals of the Natal Museum*, **39**: 1–9.
- LEVI, H. W. 1991. The Neotropical and Mexican species of the orb-weaver genera *Araneus*, *Dubiepeira* and *Aculepeira* (Araneae: Araneidae). *Bulletin of the Museum of Comparative Zoology*, **152**: 167–315.
- . 1993a. The Neotropical orb-weaving spiders of the genera *Wixia*, *Pozonia* and *Ocrepeira* (Araneae: Araneidae). *Bulletin of the Museum of Comparative Zoology*, **153**: 47–141.
- . 1993b. The orb-weaver genus *Kaira* (Araneae: Araneidae). *The Journal of Arachnology*, **21**: 209–225.
- . 1997. The genus *Taczanowskia* of the orb-weaver spider family Araneidae (Araneae). *Anales del Instituto de Biología, Universidad Nacional Autónoma de México, Serie Zoología*, **67**: 183–195.
- LEVY, G. 1997. Twelve genera of orb-weaver spiders (Araneae, Araneidae) from Israel. *Israel Journal of Zoology*, **43**: 311–365.
- LOPEZ, A. 1998. L'origine des odeurs attractives de papillons et de diptères males chez certaines araignées exotiques (genera *Kaira*, *Mastophora* et *Celaenia*: Araneidae): une approche histologique. *Bulletin de la Société d'Étude des Sciences Naturelles de Béziers, NS*, **17**(58): 9–21.
- LOPEZ, A., AND M. K. STOWE. 1985. Observations sur quelques araignées "excentriques" du nouveau monde et leurs glandes de soie. *Bulletin de la Société d'Étude des Sciences Naturelles de Béziers, NS*, **10**(51): 16–23.
- LOPEZ, A., M. K. STOWE, AND J. C. BONARIC. 1985. Anatomie interne de l' "Araignée à Bolas" nord-américaine *Mastophora cornigera* (Hentz, 1850). *Comptes Rendus, VIIIe Colloque Européen d'Arachnologie, Moulis* **8**: 1–9.
- MARX, G. 1890. Catalogue of the described Araneae of temperate North America. *Proceedings of the U.S. National Museum*, **12**(782): 497–594.
- MCCOOK, H. C. 1890. *American Spiders and their Spinningwork*. Vol. 2. Philadelphia, Pennsylvania: Academy of Natural Sciences of Philadelphia. 480 pp.
- . 1894. *American Spiders and their Spinningwork*. Vol. 3. Philadelphia, Pennsylvania: Academy of Natural Sciences of Philadelphia. 285 pp.
- MELLO-LEITÃO, C. DE. 1925. Pequenas notas arachnológicas. *Boletim do Museu Nacional do Rio de Janeiro*, **1**(6): 460.
- . 1928. Novas notas arachnológicas. *Boletim do Museu Nacional do Rio de Janeiro*, **4**(3): 49, 50.
- . 1931. Contribuição ao estudo da tribu mastophoreas. *Annaes da Academia Brasileira de Ciencias*, **3**: 62–74.
- . 1936. Duas novas aranhas do nordeste. *Annaes da Academia Brasileira de Ciencias*, **8**(9): 133–135.
- . 1940. Tres curios Argiopidae do Brasil. *Revista Chilena de Historia Natural*, **43**: 57–62.
- . 1943. Arañas nuevas de Mendoza, La Rioja y Cordoba coligids por el Prof. M. Birabén. *Revista del Museo de la Plata (Nueva Serie) Zoología*, **3**: 101–121.
- . 1945. Arañas de Misiones, Corrientes y Entre Rios. *Revista del Museo de la Plata (Nueva Serie) Zoología*, **4**: 213–302.
- MIYASHITA, T., Y. SAKAMAKI, AND A. SHINKAI. 2001. Evidence against moth attraction by *Cyrtarachne*, a genus related to bolas spiders. *Acta Arachnologica*, **50**: 1–4.
- NEAVE, S. A. 1939a. *Nomenclator Zoologicus*, A–C. Vol. 1. London: Zoological Society of London. 957 pp.
- . 1939b. *Nomenclator Zoologicus*, D–L. Vol. 2. London: Zoological Society of London. 1025 pp.
- . 1940. *Nomenclator Zoologicus*, M–P. Vol. 3. London: Zoological Society of London. 1065 pp.
- NICOLET, H. 1849. Arácnidos. In C. Gay (ed.), *Historia Física y Política de Chile*. *Zoología*, **3**: 319–543.
- PIZA, S. DE TOLEDO. 1976. Uma aranha piracicabana do gênero *Mastophora* (fam. Argiopidae). *Revista de Agricultura, São Paulo*, **51**: 83, 84.



- PLATNICK, N. I. 1989. *Advances in Spider Taxonomy 1981–1987*. Manchester, United Kingdom: Manchester University Press. 674 pp.
- . 1993. *Advances in Spider Taxonomy 1988–1991*. New York: New York Entomological Society. 846 pp.
- . 1997. *Advances in Spider Taxonomy 1992–1995. With Redescriptions 1940–1980*. New York: New York Entomological Society. 976 pp.
- . 2001. The World Spider Catalog, Version 2.0. Available at: <http://research.amnh.org/entomology/spiders/catalog>.
- PORTER, C. E. 1918. Apuntes sobre aracnología Chilena. *Revista Chilena de Historia Natural*, **22**: 139–143.
- RAINBOW, W. J. 1897. Descriptions of some new Araneidae of New South Wales. *Proceedings of the Linnean Society of New South Wales*, **22**: 514–553.
- REIMOSER, E. 1940 (1939). Wissenschaftliche Ergebnisse der österreichischen biologischen Expedition nach Costa Rica. *Annalen des Naturhistorischen Museum in Wien*, **50**: 328–386.
- ROBINSON, M. H., AND B. ROBINSON. 1975. Evolution beyond the orb web: the web of the araneid spider *Pasilobus* sp., its structure, operation and construction. *Zoological Journal of the Linnean Society*, **56**: 301–314.
- ROEWER, C. F. 1942. *Katalog der Araneae von 1758 bis 1940*. Vol. 1. Bremen, Germany: Kommissions-Verlag von "Natura". 1040 pp.
- SCHARFF, N., AND J. CODDINGTON. 1998. A phylogenetic analysis of the orb-weaving family Araneidae. *Journal of the Linnean Society, Zoology*, **120**: 355–434.
- SCHENKEL, E. 1953. Bericht über einige Spinnentiere aus Venezuela. *Verhandlungen der naturforschenden Gesellschaft, Basel*, **64**: 1–57.
- SCHMIDT, G. 2000. Giftige und gefährliche Spinnentiere. *Hohenwarsleben: Westarp Wissenschaften Die Neue Brehm Bücherei*, **608**: 1–215.
- SIMON, E. 1889. *Etudes arachnologiques*. 21e Mémoire XXXI. Descriptions d'espèces et de genres nouveaux de Madagascar et de Mayotte. *Annales de la Société entomologique de France* **8**(6): 223–236.
- . 1895. *Histoire Naturelle des Araignées*, vol 1, fasc. 4, pp. 761–1084. Paris: Librairie Encyclopédique.
- . 1897. *Etudes arachnologiques*. 27e Mémoire XLII. Descriptions d'espèces nouvelles de l'ordre des Araneae. *Annales de la Société entomologique de France*, **65**: 465–510.
- . 1908. *Etudes sur les Arachnides du Tonkin (Ire partie)*. *Bulletin Scientifique de la France et Belgique*, **42**: 69–147.
- STOWE, M. K. 1986. Prey specialization in the Araneidae, pp. 101–131. *In* W. A. Shear (ed.), *Webs. Behavior and Evolution*. Stanford, California: Stanford University Press.
- . 1988. Chemical mimicry, pp. 513–580. *In* K. C. Spencer (ed.), *Chemical Mediation of Coevolution*. San Francisco, California: Academic Press.
- STOWE, M. K., J. H. TURLINSON, AND R. R. HEATH. 1987. Chemical mimicry: bolas spiders emit components of moth prey species sex pheromones. *Science*, **236**: 964–967.
- STOWE, M. K., T. M. TURLINGS, J. H. LOUGHRIN, W. J. LEWIS, AND J. H. TURLINSON. 1995. The chemistry of eavesdropping, alarm and deceit. *Proceedings of the National Academy of Science*, **92**: 23–28.
- TULLGREN, A. 1910. Araneae. *Wissenschaftliche Ergebnisse der Schwedischen Expedition nach dem Kilimandjaro, dem Meru und den umgebenden Massaissteppen unter leitung von Prof. Dr. Yngve Sjöstedt, Stockholm*, **20**(6): 85–172.
- URTUBEY, N., AND E. BÁEZ. 1983. *Mastophora abalosi*, nueva especie de araña "cabeza de gato". *Investigation Instituto de Animales Venenosus de Santiago del Estero*, **1**: 1–13.
- VANZOLINI, P. E., AND N. PAPAVERO. 1968. Índices dos topônimos contidos na carta do Brasil. *FA-PESP*, 1–202.
- VELLARD, J. 1926. Contribution à l'étude des araignées. Nouvelles espèces d'Argiopidae. *Memorias del Instituto de Butantan, São Paulo*, **3**: 327–331.
- YEARGAN, K. V. 1988. Ecology of a bolas spider, *Mastophora hutchinsoni*: phenology hunting tactics, and evidence for aggressive chemical mimicry. *Oecologia*, **74**: 524–530.
- . 1994. Biology of bolas spiders. *Annual Review of Entomology*, **39**: 81–99.
- YEARGAN, K. V., AND L. W. QUATE. 1996. Juvenile bolas attract psychodid flies. *Oecologia*, **106**: 266–271.
- . 1997. Adult male bolas spiders retain juvenile hunting tactics. *Oecologia*, **112**: 272–276.
- YIN, CHANGMIN. 1997. *Arachnida, Araneae: Araneidae*. Beijing, China: Fauna Sinica, Academia Sinica, Science Press. 460 pp.

## INDEX

Valid names are printed in italics. Page numbers refer to main references, starred page numbers to illustrations.

- abalosi*, 355\*, 356, 377\*  
*Acacesia*, 315  
*Acantharachne*, 314  
*Acantharanea*, 314  
*Agathostichus*, 315  
*Agatostichus*, 315  
*akermanni*, 375\*, 377\*, 378  
*alachua*, 329\*, 330  
*Alpaida*, 315  
*altiventer*, 325  
*alvareztoroi*, 359\*, 360  
*apalachicola*, 326, 327\*  
*Araneus*, 315  
*archeri*, 346, 347\*, 377\*  
*bicurvata*, 345  
*bisaccata*, 327\*, 330, 331\*, 377\*  
*bisaccatum*, 330  
*brescoviti*, 361\*, 363  
*carpogaster*, 340  
*carpogastera*, 340  
*carpogastra*, 327\*, 340, 377\*  
*carpogastrum*, 340  
*catarina*, 335\*, 339  
*Celaenia*, 315–317  
*Cladomelea*, 314, 316–18, 378  
*Coelossia*, 314  
*comma*, 355\*, 356, 377\*  
*conifera*, 361\*, 364  
*coniferus*, 364  
*cornigera*, 343\*, 344, 377\*  
*cornigera*, 342  
*cornigerum*, 345  
*cornigerus*, 345  
*corpulenta*, 364, 365\*, 377\*  
*corpulentum*, 364  
*corpulentus*, 364  
*corumbatai*, 335\*, 339  
*cranion*, 349\*, 351  
*Cyrtarachne*, 315–317  
*Cyrtophora*, 315  
*diablo*, 327\*, 371\*, 372, 377\*  
*Dierostichus*, 314  
*dizzydeani*, 349\*, 350  
*Eriophora*, 315  
*escomeli*, 365\*, 366  
*Euglyptila*, 376  
*Exechocentrus*, 314  
*extraordinaria*, 355\*, 357, 377\*  
*fagoides*, 340  
*fasciata*, 347\*, 348, 377\*  
*fasciolata*, 318, 325  
*felda*, 326, 327\*  
*felis*, 367\*, 369  
*gasteracanthoides*, 327\*, 373\*, 374, 377\*  
*gasteracanthoides*, 366, 372  
*gasteracanthoides oxalidis*, 374  
*Glyptocranium*, 315  
*haywardi*, 335\*, 339  
*Heterocephala*, 315  
*holmbergi*, 367\*, 369  
*hutchinsoni*, 342, 343\*, 377\*  
*intermedia*, 72  
*Kaira*, 315–317, 325  
*lara*, 335\*, 340  
*lenca*, 364  
*leucabulba*, 358, 359\*  
*leucabulbus*, 358  
*leucacantha*, 361\*, 362  
*leucacanthus*, 363  
*longiceps*, 351, 353\*  
*magnificus*, 375\*, 376, 377\*  
*Mastophora*, 315–317  
*melloleitaoi*, 355\*, 356  
*Metepira*, 315  
*monstruosus*, 377\*  
*multilimeata*, 330  
*obesus*, 330  
*obtusa*, 367\*, 368  
*obtusum*, 368  
*occidentalis*, 348  
*Ocrepeira*, 315  
*Ordgarius*, 314, 316, 317, 376  
*Pasilobus*, 315–318  
*pesqueiro*, 352, 353\*  
*phrynosoma*, 333\*, 336, 377\*  
*pickeli*, 349\*, 350  
*pickeli occidentalis*, 348  
*piras*, 352, 353\*  
*Poecilopachys*, 315–317  
*rabida*, 365\*, 366  
*reimoseri*, 367\*, 370  
*satan*, 370, 371\*, 377\*  
*satsuma*, 325, 327\*  
*seminole*, 337\*, 341  
*soberiana*, 361\*, 362  
*stowei*, 331\*, 334, 377\*  
*Taczanowskia*, 315–317  
*tinuqua*, 328, 329\*, 377\*  
*vaquera*, 337\*, 342, 377\*  
*yacare*, 354, 355\*  
*yeargani*, 333\*, 336, 377\*  
*ypiranga*, 353\*, 354